DAM BREACH FLOOD MAPS

FOR

GWINNETT COUNTY, GEORGIA

PREPARED BY THE STAFFS

OF THE

GEORGIA ENVIRONMENTAL PROTECTION DIVISION

GEORGIA SOIL AND WATER CONSERVATION COMMITTEE

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ATHENS, GEORGIA

FOR THE

GOVERNOR'S SAFE DAMS INTERAGENCY TASK FORCE

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September 1980

PREFACE

The Georgia Safe Dams Act of 1978 can have a profound effect on the dam owners of Georgia.

Even though a dam is properly designed, constructed, and maintained, the owner may find he does not meet the requirements of the law. This occurs when a Category II dam suddenly becomes a Category I (high hazard) dam because some individual or group establishes a human habitation in the path of the dam break flood. Under the provisions of the law, it becomes mandatory for the owner of the dam to modify the structure to the degree necessary to provide greater protection to this downstream inhabitant.

The purpose of this publication is to introduce a procedure which will help ensure that owners of dams will not face this concern. The Governor's Task Force on Dam Safety assumed the task of developing a model dam safety ordinance and a procedure for estimating the potential dam failure areas of inundation.

Gwinnett County Commissioners have agreed to consider the information developed as a supplement to their existing flood plain ordinance. Assuming this approach is successful in Gwinnett County, local governments throughout Georgia will have a sample to follow in taking similar action. This truly will benefit the people of Georgia.

ACKNOWLEDGEMENTS

The generous assistance of the staff of the River Forecast Center of the National Atmospheric and Oceanographic Administration based at Hartsfield Airport, and the South Atlantic Division, U.S. Army Corps of Engineers, is greatfully acknowledged.

INTRODUCTION

The interagency task force was assembled to develop a Model Safe Dams Ordinance. The intent is to limit development in the dam-failure flood zone below Category II dams to reduce the probability of probable loss of life and to avoid their reclassification to Category I. Under Category I classification, many improvements on the dam are usually required at a substantial cost to the owner of the dam.

Gwinnett County was chosen for a pilot study due to interest expressed by local officials and rapid urbanization of that area of Georgia.

To determine the extent of dam failure floods, a Technical Committee was assembled to develop procedures and flood route dam failure floods from the more than 50 Category II dams in Gwinnett County. Flood routing responsibilities were divided among the Georgia Soil and Water Conservation Committee, the Soil Conservation Service, and the Environmental Protection Division of the Department of Natural Resources. Valuable special assistance to the committee was rendered by NOAA, Atlanta, and the Savannah District of the U.S. Army Corps of Engineers.

Each agency followed approved, but not necessarily identical procedures. Due to the uncertainties of any procedure used to predict the results of a dam break event, the participating agencies or their employees are not liable for any injury, suffering, or death that occur as a result of the use of these maps or any further extrapolation of the data herein. All calculations and other backup data for dams in this report are on file in Gwinnett County, Georgia.

Only dams which have been classified as Category II in Gwinnett County by the State Soil and Water Conservation Committee are included in this report. This is consistent with the purpose of study which is to prevent Category II dams from being reclassified to Category I. As defined in the Georgia Safe Dams Act of 1978, Category I dams are those where improper operation or dam failure would result in probable loss of human life. Category II dams are those where improper operation or dam failure would not be expected to result in loss of human life. There is a third category of dams known as exempt which were not studied for this report. These are dams which do not fall under the jurisdiction of the law because of size.

The maps show two potential hazard areas. The green area immediately below the dams is the area which might be inundated if the dam breached. The blue area is the 100-year flood delineation which was determined from HUD Flood Reports and Corps of Engineers Flood Reports. The dam breach flood was projected downstream until it coincides with the 100-year flood or is confined in the stream channel.

These maps were developed using the best technology available for routing dam breach floods. However, dam breaks are very unpredictable in character and an actual breach of any given structure could produce different water surface elevations than those shown on the maps. There is also the matter scale. The published maps are presented on a rather large scale. For these reasons, if

a detailed, accurate study is needed for a specific parcel of property, it is recommended that a qualified professional engineer be engaged to make a study of the specific area in question and give a professional opinion concerning the expected water surface.

The maps in this publication are reductions of 1:24000 scale maps which are available along with flood profiles from the Gwinnett County Government.

METHODOLOGY

Two methods were used in determining water surface elevations. One method was the U.S. Department of Commerce's Dam Break Computer Model (National Oceanographic and Atmosphere Administration) originally developed by Dr. Daniel Fread. This model is rapidly gaining wide acceptance and is generally considered "state of the art" predictive modeling. Even so, it does use some simplifying assumptions. The more significant ones are listed in the "general assumptions" section.

The input data used for each dam was developed by staff personnel of the agencies involved from the most accurate readily available source. More specifically, channel cross sections were scaled from either USGS 7.5' quad maps or HUD Flood Insurance maps, whichever was available. A channel profile was also prepared using one of these sources. Dam height and reservoir storage information was obtained from the State Soil and Water Conservation Committee. A field inspection of each dam and downstream reach was conducted by engineering personnel. During this inspection, an estimate of channel roughness was made using experience and photographic references. Also, prominant downstream features, such as road embankments, bridges, and culverts were measured using a tape, rod, and level. Channel expansion and contraction coefficients were estimated with the help of NOAA personnel based largely on examination of either of the previously noted maps and experience.

A more detailed description of the computer model is found in a paper entitled "DAMBRK - The NWS Dam-Break Flood Forecasting Model", presented by Dr. D. L. Fread at the NWS Dam-Break Model Symposium, October 15 through 19, 1979, in Tulsa, Oklahoma.

The second method used the U.S. Department of Agriculture's SCS simplified Dam-Breach routing procedure found in its Technical Release No. 66 (TR-66) prepared by Mr. John A. Brevard and Dr. Fred D. Theurer. This procedure develops an analytical breach hydrograph from a breached dam and routes the flood wave downstream to determine downstream peak discharges and associated stages.

The procedure is a combined hydrologic-hydraulic method. The hydrologic portion develops the breach hydrograph independent of the valley routing procedures. The hydraulic portion is a simplified version of a simultaneous storage routing-kinematic routing method, the Attenuation-Kinematic (Att-Kin) model. The Att-Kin model accepts a breach hydrograph at the upstream end of the reach and, continuously, in time and space, routes the flood wave downstream.

The procedure cannot precisely predict flood stages from an actual breach. One reason for this is that the breach hydrograph of an actual event will not necessarily match the breach hydrograph used in the procedure. Duplication of flood stages from an actual breach requires (1) reconstructing the actual breach hydrograph and accurately routing it downstream or (2) solving the unsteady flow equations simultaneously through the reservoir, the breach, and downstream. Either method can be used to correctly route the flood wave, but the required breach information is not known until too late for predictive purposes.

The valley data and profile data used for the dam was developed by Georgia SCS personnel from cross sections scaled from USGS 7.5 quad maps. Basic dam and reservoir storage information was obtained from the State Soil and Water Conservation Committee. A field inspection of the dam and downstream road fills and other obstructions was conducted by SCS field engineers to obtain and/or check basic dam information and possible effects of downstream obstructions. During this inspection, an estimate of valley roughness was made based on experience and photographic references.

The dam break routings in this study were carried downstream from the structure to the point where the dam break flood coincides with the 100-year floodwater surface or the dam break flood is confined to the stream channel. The 100-year flood lines were obtained from the work of others and were performed for purposes of flood plain identification for insurance purposes or possible zoning.

SPECIFIC ASSUMPTIONS

Each dam was assumed to fail at maximum water storage level (top of dam). For engineered structures where design information was readily available, failure at the maximum design flow level in the emergency spillway was assumed. The principal and emergency spillways were assumed to be inoperative and base flow conditions were assumed to exist throughout the system with no flood in progress. Base flow was set at a minimum to provide computational stability and convergence within the mathematical structure of the computer program. Elevations were obtained by interpolation between 20-foot contours. Accordingly, elevations shown should only be used to compare reach and storage information within a single breach analysis.

Breach geometry was taken as follows:

Breach base width equals dam height.

Sideslopes of breach were 1 ft. vertical to 1/2 ft. horizontal.

Time to failure was taken as 0.1 hr. (6 minutes) to approximate an instantaneous failure, except engineered structures which were assumed to fail in 1 to 2 hours.

Upstream dams were assumed to fail by piping while all downstream dams were assumed to fail by overtopping 1 to 2 feet. Most roads were assumed to fail in 0.5 hr. (30 minutes) but well-built state and federal roads and interstate highways were treated as downstream dams.

It was assumed that the accumulated debris driven by the advancing flood wave would reduce the function of culvert and bridge openings to half normal capacity.

Where TR-66 was used, maximum breach flow was based on an empirical equation developed from past dam failure data.

-REFERENCES-

1. The National Weather Service Dam Break Flood Forecasting Model, D. L. Fread, Office of Hydrology, National Weather Service, 1978 with updates.

2. Fread, D. L., Notes from course on use of the National Weather Service Dam Break Flood Forecasting Model conducted in November 1978.

3. Fread, D. L., Notes from the National Weather Service Dam Break Model Seminar conducted in August 1980.

4. Simplified Dam-Breach Routing Procedure, J. A. Brevard and F. D. Theurer, USDA, Soil Conservation Service, Technical Release No. 66, March 1979.

5. Verification of SCS Dam-Breach Routing Procedure, F. D. Theurer and G. H. Comer, American Society of Agricultural Engineers, Paper No. 79-2577, December 1979.

6. Flood Plain Information Report, Sweetwater--Jackson-camp-Beaver Ruin and Bromolow Creeks. Metropolitan Atlanta, Georgia, Corps of Engineers, Savannah District, June 1969.

7. Flood Plain Information Report, Big Haynes Creek, Metropolitan Atlanta, Georgia, Corps of Engineers, Savannah District, April 1974.

8. Flood Plain Information Report, Yellow River, Metropolitan Atlanta, Georgia, Corps of Engineers, Savannah District, April 1971.

9. Computer Program 723-X6202A HEC-2 Water Surface Profile, U.S. Army Corps of Engineers, Hydrologic Engineering Center, Davis California, December 1968 with updates.

10. Open Channel Hydraulics, Chow, Ven Te, McGraw Hill Book Company, New York, 1959.

11. Open Channel Flow, Henderson, F. M., MacMillan Publishing Company, Inc., New York, 1966.

12. Guidelines for Determining Inundated Areas Resulting from Dam Failures - State of Georgia, George F. McMahon, U.S. Army Corps of Engineers, Savannah, Georgia, 1979.

MODEL ORDINANCE

The following section is proposed for addition to the Gwinnett County Zoning Ordinance:

Section _____. Dam Break Flood Hazard District.

The Dam Break Flood Hazard District is comprised of those lands that would be subjected to flooding if a structure defined as a Category II dam under the Georgia Safe Dams Act of 1978 should fail. The intent of this section is to regulate the use of lands within the dam break flood zone of Category II dams in order to:

1. Prevent possible loss of human life and damage to persons and property.

2. Prevent Category II dams, as defined under the Georgia Safe Dams Act of 1978, from becoming Category I dams unless such Category II dams meet Category I design criteria.

3. Permit uses that are appropriate in the dam break flood zone in order to utilize effectively these important lands.

4. Prohibit the construction of commercial establishments, temporary or permanent residences, including camping areas or trailer parks and other activities in a dam break flood zone which would change a dam from a Category II to a Category I dam where loss of human life would occur if the dam should fail unless such Category II dam meets Category I design criteria.

Within the Dam Break Flood Hazard District, any use is permitted which would not change the category of the dam. Specifically, the following uses are permitted:

1. Agriculture, including forestry and livestock raising, requiring no structures for human habitation within the dam break flood zone, and including agricultural and forestry access roads.

2. Dams provided they are constructed to meet Category I design standards.

3. Fences.

4. Outdoor Advertising Signs located not closer than 100 feet to any residential or institutional structure.

5. Roads and Parking Areas.

6. Public, Semipublic, Private, and Commercial Recreation Uses requiring no structures within the dam break flood zone. (However, no camping is permitted.)

7. Public Utility Poles, Towers, Pipelines, Sewage Treatment Outfalls, and Sewage Lagoons.

Procedure for Requesting a Variation in the Dam Break Flood Hazard Zoning District Boundary Line.

If a property owner can demonstrate to the satisfaction of the Gwinnett County Zoning Board of Appeals through a more accurate engineering survey and flood routing of the dam break flood by a qualified engineer that his property or a designated portion of it that now lies in the Dam Break Flood Hazard Zoning District would not cause the dam in question to become a Category I dam, then the Zoning Board of Appeals may change the Flood Hazard District Boundary line accordingly.

The Gwinnett County Zoning Board of Appeals and the property owner involved may seek the advice of the State Soil and Water Conservation Committee in determining the proper District Boundary line.

Procedure for Changes in Dam Break Flood Hazard Zoning District.

If a property owner can demonstrate to the satisfaction of the Gwinnett County Zoning Board of Appeals that the dam above the lands in the Dam Break Flood Hazard District meets the design criteria for Category I dams as established by the State Environmental Protection Division of the Department of Natural Resources, then the Gwinnett County Zoning Board may at its discretion eliminate or change the boundaries of that district below the dam in question.

The Gwinnett County Zoning Board of Appeals and the property owner involved may seek the advice of the State Soil and Water Conservation Committee in this matter.

Summary Data Table

Plate Number	ID Number	Dam Name	Dam Height (Ft.)	Reservoir Storage (max.) Ac. Ft.	1/ Distance (Ft.)	2/ Acres
55A	067-062-0611	Walt's Folly	24.8	110	2600	10
55B	067-061-0610	Suwanee Bogging Hole	18.4	68	2500	28
55B	067-060-0609	Sims	28.2	61	4200	4/
65A	067-059-0608	Annandale	21.9	106	1400	10
65B	067-065-0614	Louella	29.4	101	4400	5/
70A	067-050-0548	Casteel	18	54.7	4900	20
70B	067-015-0200	Yellow River #Y-17	30	975	15000	140
70B	067-016-0201	Yellow River #Y-16	33.6	704	2700	4/
80	067-036-0602	Bona Allen	17.3	210	9100	5/
85A	067-073-0656	Harrison	27.8	88	2400	10
85B	067-0004-0012	Upper Mulberry #7	40	1235	19200	45
90A	067-034-0541	Crowe #3	30	100	4400	10
90B	067-031-0601	Hogan	32.4	106	5200	20
95A	067-066-01014	Byrne's	39.6	53	5100	5/
95A	067-058-0607	Griffin	25	20	3200	15
95B	067-017-0243	Upper Mulberry #11	48	1990	11500	75
135	067-003-007	Cadence Corp.	30	120	3700	16
155	067-048-0628	Black's	16	86	2200	5/
160	067-055-0605	Alpha Kappa Corp.	30	152	2000	5/
160	067-069-0653	Bristol	16.8	56	5000	10
160	067-008-0207	Cardinal	27.2	380	7000	40
160	067-049-0547	Norman	32.8	194	5100	40
165	067-053-0550	Burns	28.8	80	6200	30
170	067-054-0604	Freeman	9.8	300	3800	20
180A	067-011-0202	Rollins #1	23.2	62	100	3/
180A	067-013-0204	Rollins #2	29.6	281	14000	100
180A	067-012-0203	Rollins #3	25	44	100	3/

Continued on Page 12

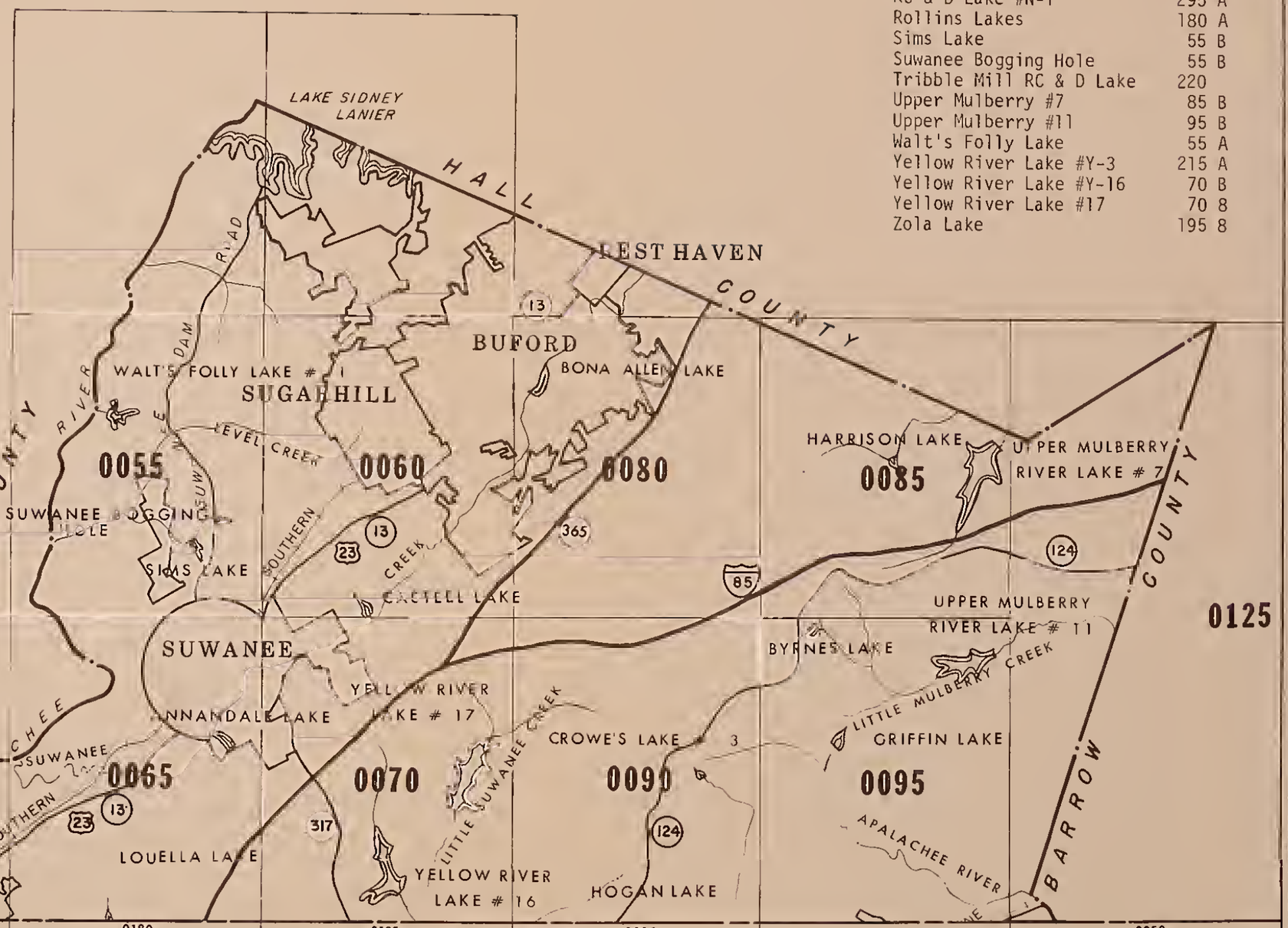
Summary Data Table

Plate Number	ID Number	Dam Name	Dam Height (Ft.)	Reservoir Storage (max.) Ac. Ft.	1/ Distance (Ft.)	2/ Acres
180C	067-047-0546	Hughs	32.8	80	7500	40
185B	067-046-0545	Lionel	27	39	1500	10
195A	067-068-0630	Atha	31	49	2000	6
195B	067-037-0543	Zola	17.6	1955	1600	5/
215A	067-043-0657	Yellow River #Y-3	35	389	5800	25
215B	067-040-0658	Arnold	22.8	115	3800	15
215C	067-045-0544	Kennerly's Wash Hole	24	91	1000	4/
215C	067-006-0082	Big Haynes Creek #3	33	NA	9000	140
305A	067-020-0397	Big Haynes Creek #25	34.8	NA	4000	4/
305A	067-023-0651	B.T.S. Corp. #1	22	239	50	4/
305A	067-024-0399	B.T.S. Corp. #2	21	68	6400	4/
215D	067-039-0652	Dove	22	79	3600	45
220	067-002-0002	Bass & Bream	35	862	300	3/
220	067-001-0001	Tribble Mill	35	2349	15800	65
280	067-028-0402	Pylant	30.6	70	300	3/
280	067-022-0398	Panter	46.4	203	3200	30
280	067-029-0460	Lucerne	19.4	150	6/	6/
295A	067-021-0370	RC & D N-1	44.7	1279	24000	130
295A	067-051-0549	Kilpatrick	34.2	82	200	4/
305B	067-022-0398	Little Ten Corp.	26	202	5100	20
310A	067-019-0396	Big Haynes Creek #22	25	NA	2500	10
310B	067-0002-00015	Carlton	19.5	1088	8000	20
		TOTAL ACREAGE				1195

1/ Distance below dam that breach flood crest fell outside the 100-year flood zone.
2/ Additional Acres involved outside the 100-year flood zone.
3/ Structure breaches into lower lake.
4/ Acreage included in breach area of another structure (noted).
5/ No 100-year flood zone information available.
6/ Breach flood area within the 100-year flood zone.

Lake	Plate No.
Alpha Kappa Corp. Lake	160
Annandale Lake	65 A
Arnold Lake	215 B
Atha Lake	195 A
Bass and Bream Lake	220
Big Haynes Creek Lake #3	215 C
Big Haynes Creek Lake #22	310 A
Big Haynes Creek Lake #25	305 A
Black's Lake	155
Bona Allen Lake	80
Bristol Lake	160
BTS Corp. Lakes	305 A
Burns Lake	165
Byrnes Lake	95 A
Cadence Corp. Lake	135
Cardinal Lake	160
Carlton Lake	310 B
Casteel Lake	70 A
Crowe's Lake	90 A
Dove Lake	215 D
Freeman Lake	170
Griffin Lake	95 A
Harrison Lake	85 A

Lake	Plate No.
Hogan Lake	90 B
Hughes Lake	180 C
Kennerley's Wash Hole	215 C
Kilpatrick Lake	295 A
Lionel Lake	185 B
Little Ten Corp. Lake	305 B
Louella Lake	65 B
Lucerne Lake	280
Norman Lake	160
Panter Lake	280
Pylant Lake	280
RC & D Lake #N-1	295 A
Rollins Lakes	180 A
Sims Lake	55 B
Suwanee Bogging Hole	55 B
Tribble Mill RC & D Lake	220
Upper Mulberry #7	85 B
Upper Mulberry #11	95 B
Walt's Folly Lake	55 A
Yellow River Lake #Y-3	215 A
Yellow River Lake #Y-16	70 B
Zola Lake	195 B



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVERNMENT. LARGE MAP NUMBERS SHOWN

NORTH

0 5000 10,000
SCALE IN FEET

INDEX MAP
DAM BREACH FLOOD MAPS
for
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PLATE NO 1

JOINS PLATE 1

0065 0070 0090 0095 0125

BLACKS LAKE
NORMAN LAKE
ROLLINS LAKE
BRISTOL LAKE
BERKELEY
CARDINAL LAKE
ALPHA KAPPA LAKE
SOUTHERN
PLEASANT HILL ROAD
LEE DANIEL CREEK
SEABOARD COAST
DACULA
0135 0155 0160 0180 0185 0205
CADENCE CORP. LAKE
NORCROSS
HOP CREEK
BROMOLON CREEK
HUGHES LAKE
LIONEL LAKE
LAWRENCEVILLE
YELLOW RIVER LINE
0250
RUIN CREEK
FREEMAN LAKE
BEAVER
SWEETWATER CREEK
YELLOW RIVER
LAKE # 3
TRIBBLE MILL
R C & D LAKE
ALCOVY RIVER
0165 0170 0190 0195 0215 0220
SEABOARD COAST
THA LAKE
HAYNES CREEK
LAKE # 3
ARNOLD LAKE
BASS AND BREAM LAKE
GRAYSON
JACKSON
LILBURN
CREEK
ZOLA LAKE
KENNERLEY'S WASH HOLE
DEKALB COUNTY
BURNS LAKE
HAYNES CREEK LAKE # 25
HAYNES CREEK LAKE # 22
SNELLVILLE
BTS CORP. LAKE (UPPER)
BTS CORP. LAKE (LOWER)
BUSHY FORK CREEK
CAMP
PANTER LAKE
LOGANVILLE
0280 0285 0305 0310
LUCERNE LAKE
PYLANT LAKE
CARLTON LAKE
R C & D LAKE # 1
LITTLE TEN CORPS. LAKE
HAYNES CREEK
YELLOW RIVER
NO BUSINESS CREEK
KILPATRICK LAKE
LEE ROAD
0295
GWINNETT COUNTY
ROCKDALE COUNTY
WALTON
0315

NOTE: See Map Index List On Plate 1

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NORTH

0 5000 10,000
SCALE IN FEET

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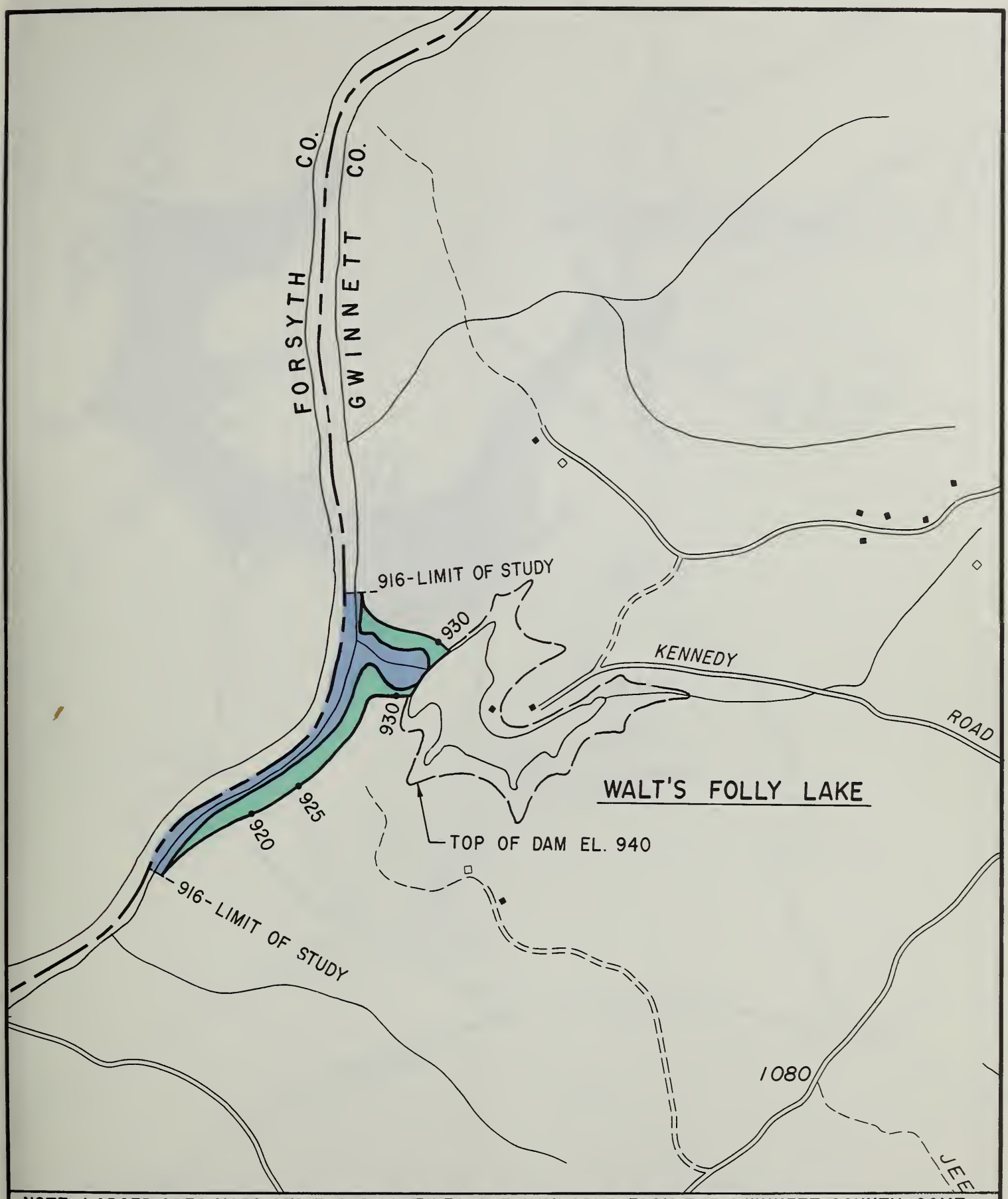
PLATE NO 2



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVT.

LEGEND

906
DAM BREACH FLOOD AREA
100 YEAR FLOOD AREA
DAM BREACH FLOOD AREA
906
FLOOD ELEVATION

DAM BREACH FLOOD MAP
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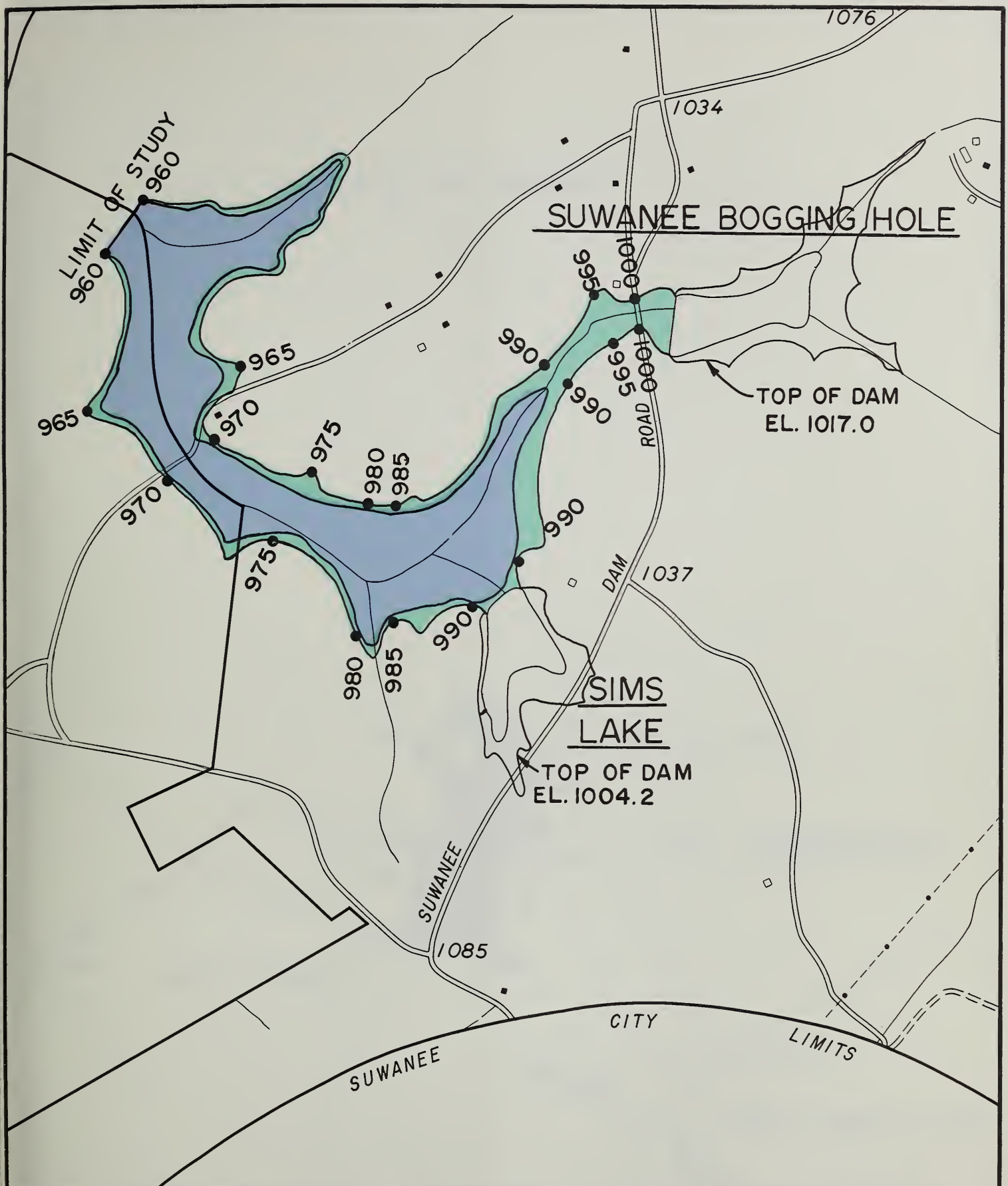
NORTH

0 500 1,000
SCALE IN FEET

PLATE 55A



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVT.

LEGEND

906
- DAM BREACH FLOOD AREA
- 100 YEAR FLOOD AREA
- DAM BREACH FLOOD AREA

906
- FLOOD ELEVATION

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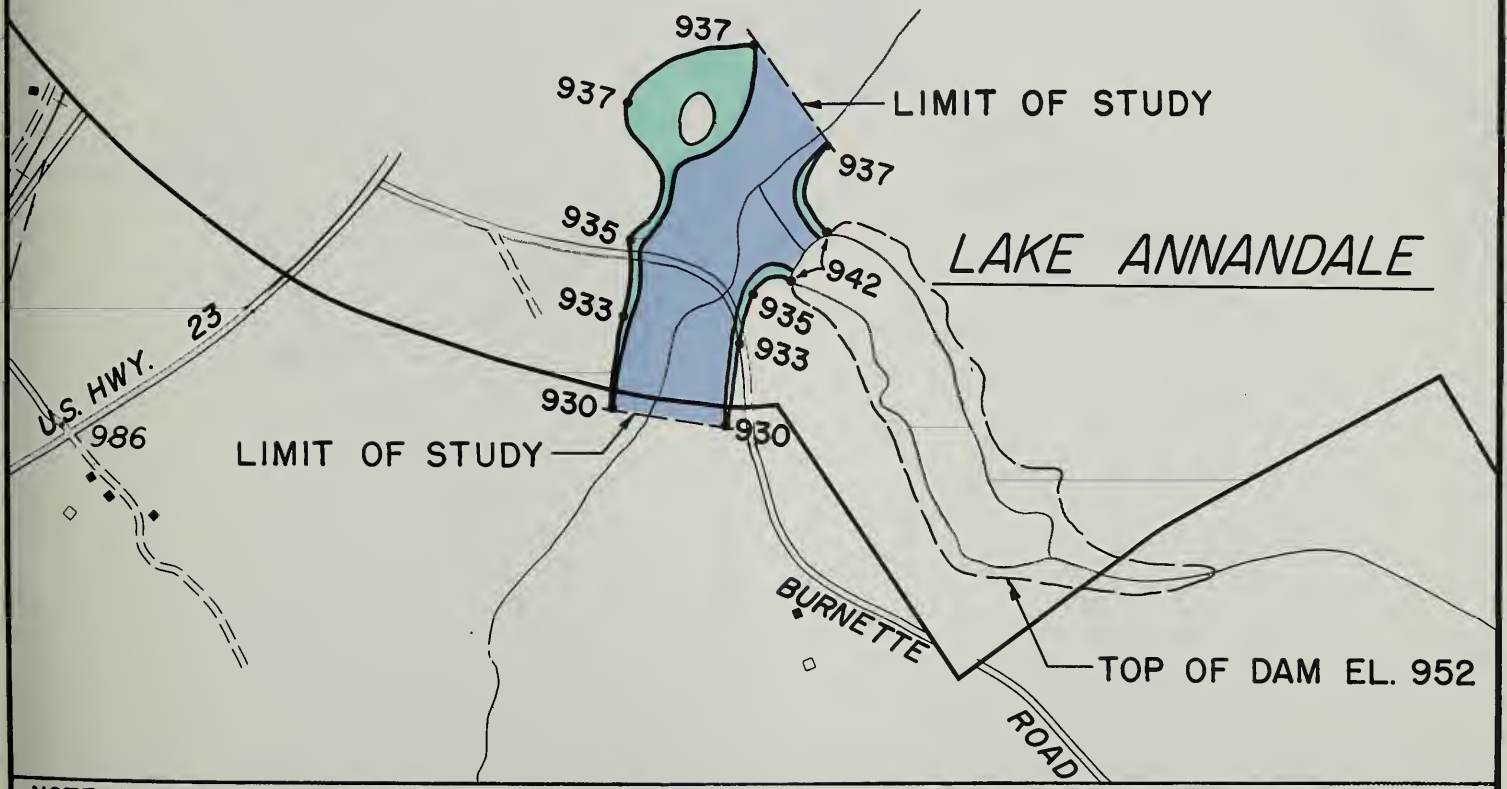
NORTH

0 500 1,000
SCALE IN FEET

PLATE 55B

CITY OF SUWANEE



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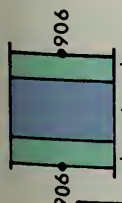
LEGEND



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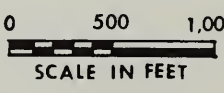
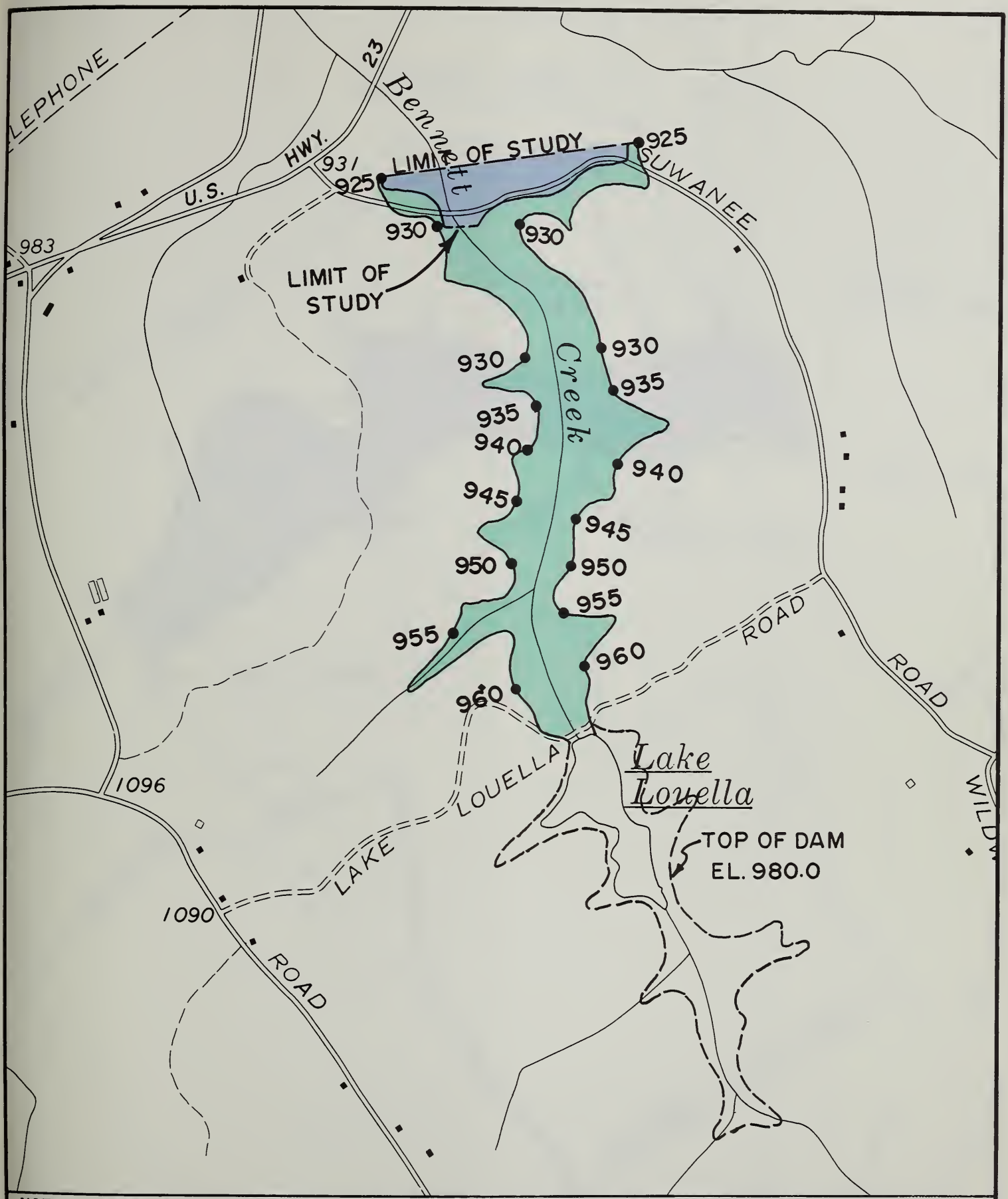


PLATE 65A



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LEGEND

906 — DAM BREACH FLOOD AREA

— 100 YEAR FLOOD AREA

— DAM BREACH FLOOD AREA

906 — FLOOD ELEVATION

DAM BREACH FLOOD MAP
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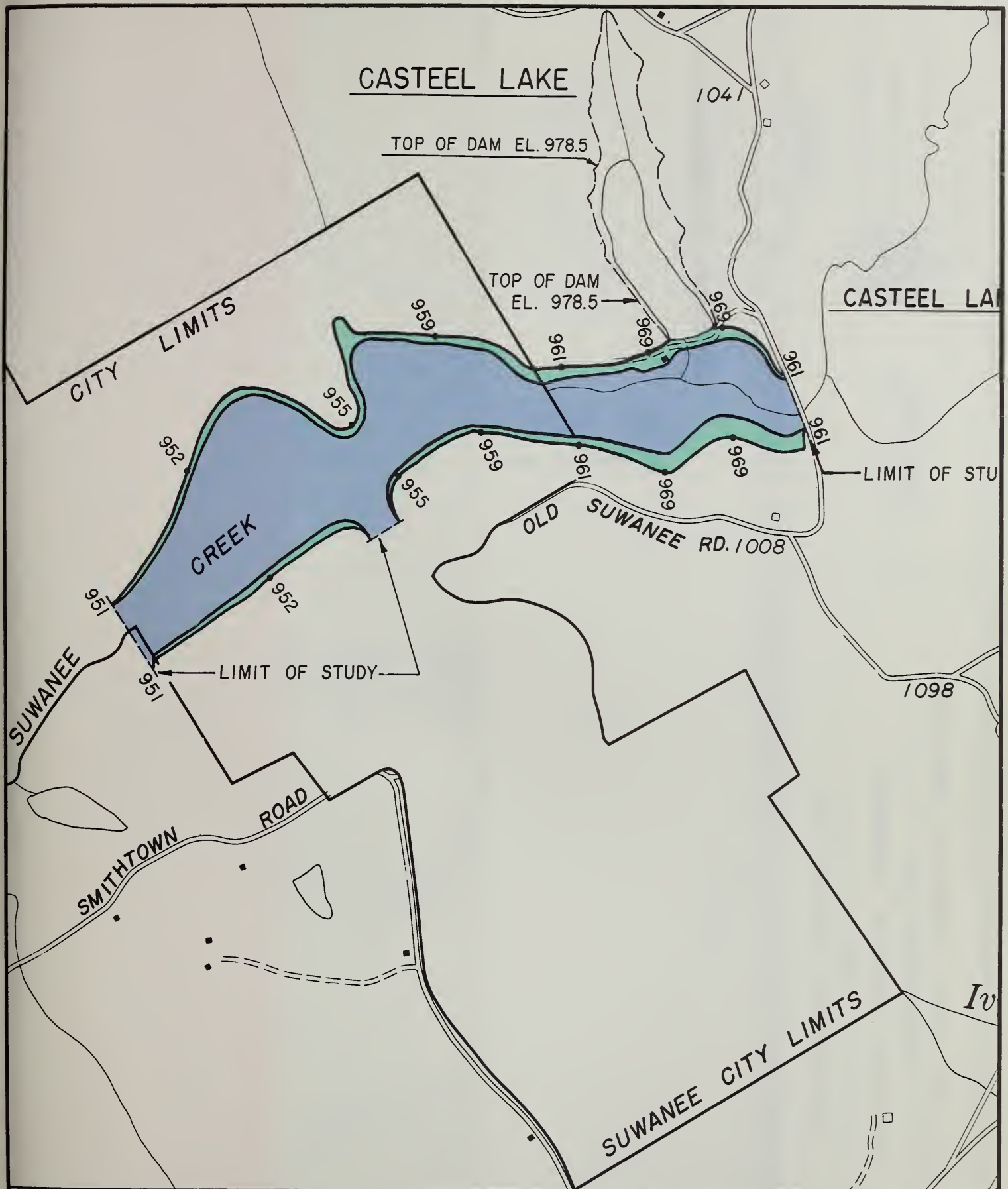
NORTH

0 500 1,000

SCALE IN FEET

PLATE 65B



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LEGEND

906 — DAM BREACH FLOOD AREA

— 100 YEAR FLOOD AREA

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NORTH

0 500 1,000

SCALE IN FEET

PLATE 70A

LAWRENCEVILLE

SUWANEE

YELLOW RIVER Y-16

TOP OF DAM EL. 990

HILL

1133

Creek

Lake Perrin

YELLOW RIVER NO. 17

TOP OF DAM EL. 998

N

990

985

980

988

985

980

975

970

968

966

Suwanee

Little

1025

1081

ROAD

TAYLOR ROAD

990 ROAD

Wildcat Creek

JOINS 185A

LEGEND

DAM BREACH FLOOD AREA

100 YEAR FLOOD AREA

DAM BREACH FLODD AREA

FLOOD ELEVATION

906 906

0 500 1,000

SCALE IN FEET

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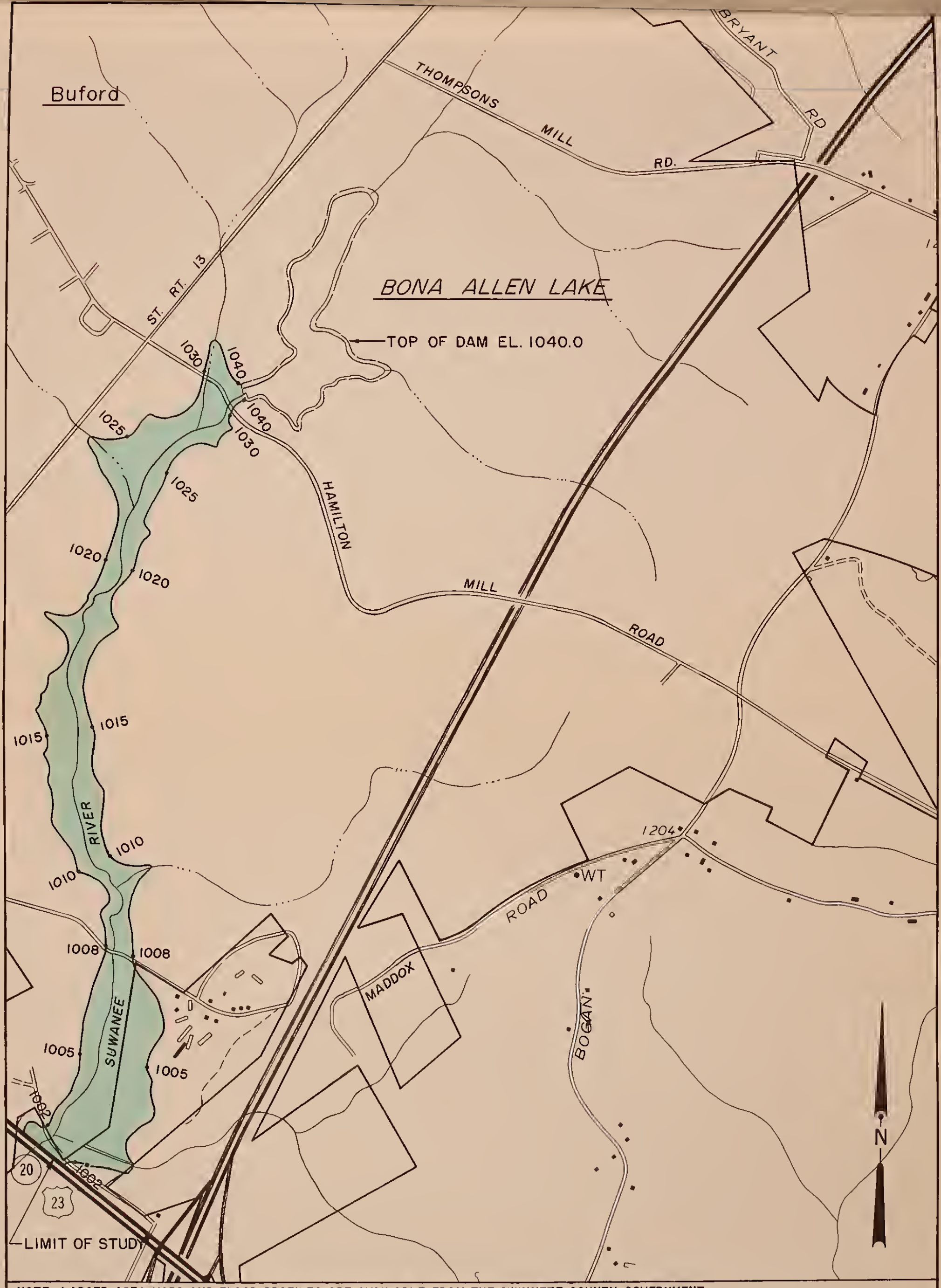
prepared by the
Governor's Safe Dams Interagency Task Force

PLATE 70B



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVERNMENT

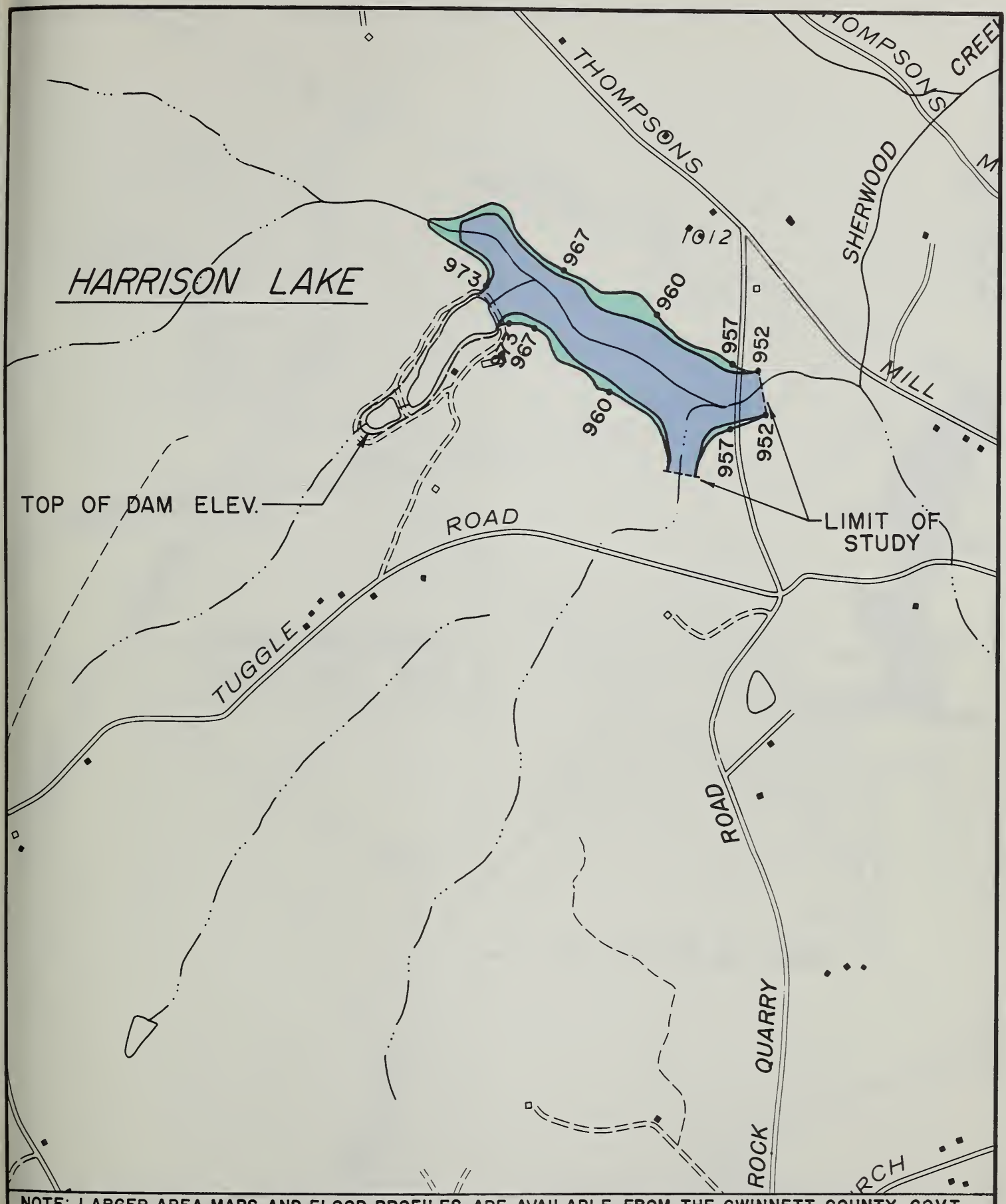
PLATE 80

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams Interagency Task Force

0 500 1,000
SCALE IN FEET

LEGEND

- 906 — DAM BREACH FLOOD AREA
- 100 YEAR FLOOD AREA
- 906 — DAM BREACH FLOOD AREA
- FLOOD ELEVATION



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVT.

LEGEND

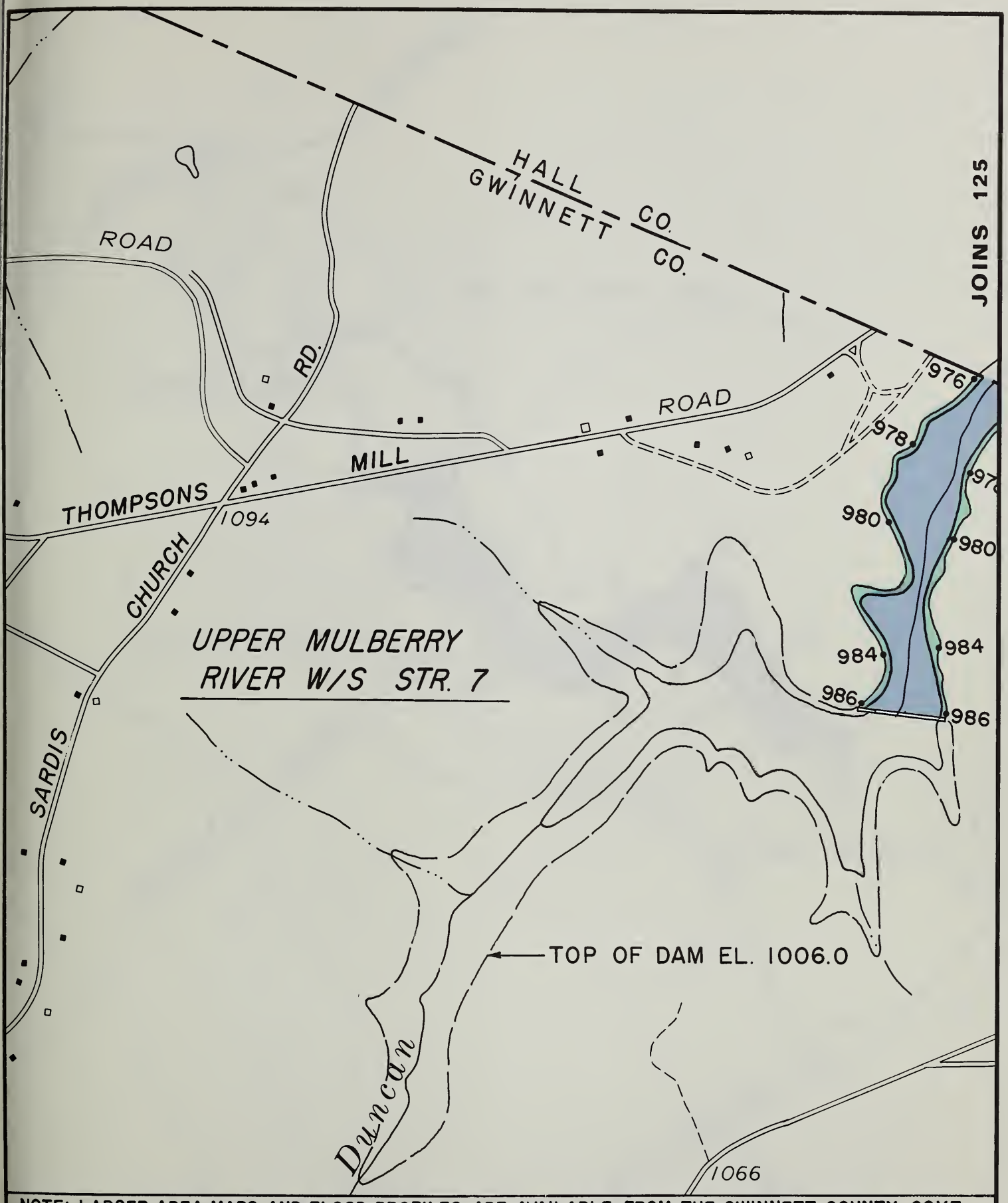
906 — DAM BREACH FLOOD AREA
— 100 YEAR FLOOD AREA
— DAM BREACH FLOOD AREA
906 — FLOOD ELEVATION

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams
Interagency Task Force

NORTH

0 500 1,000
SCALE IN FEET

PLATE 85A



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVT.

LEGEND

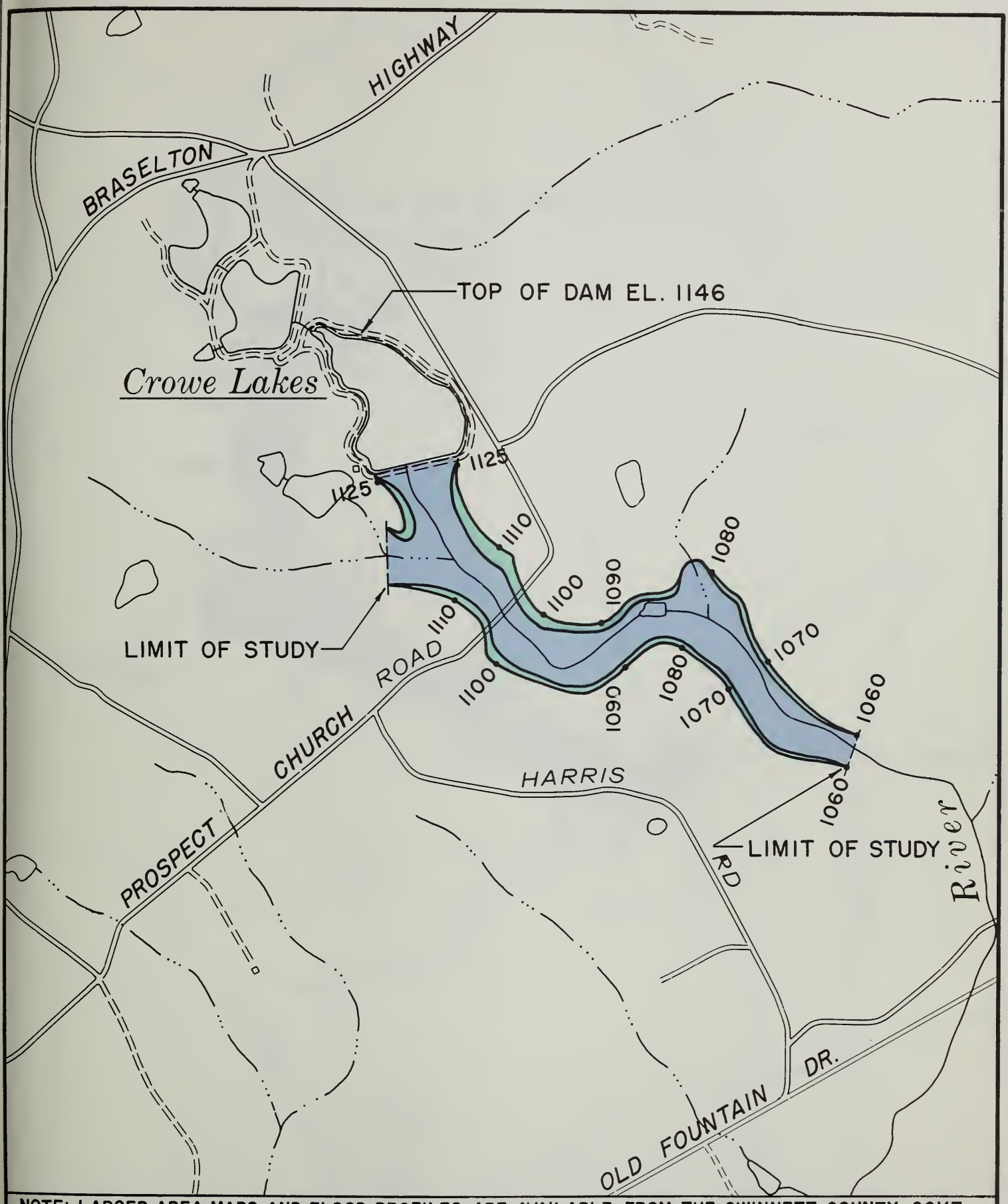
906
DAM BREACH FLOOD AREA
100 YEAR FLOOD AREA
DAM BREACH FLOOD AREA
906
FLOOD ELEVATION

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams
Interagency Task Force

NORTH

0 500 1,000
SCALE IN FEET

PLATE 85B



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVT.

LEGEND

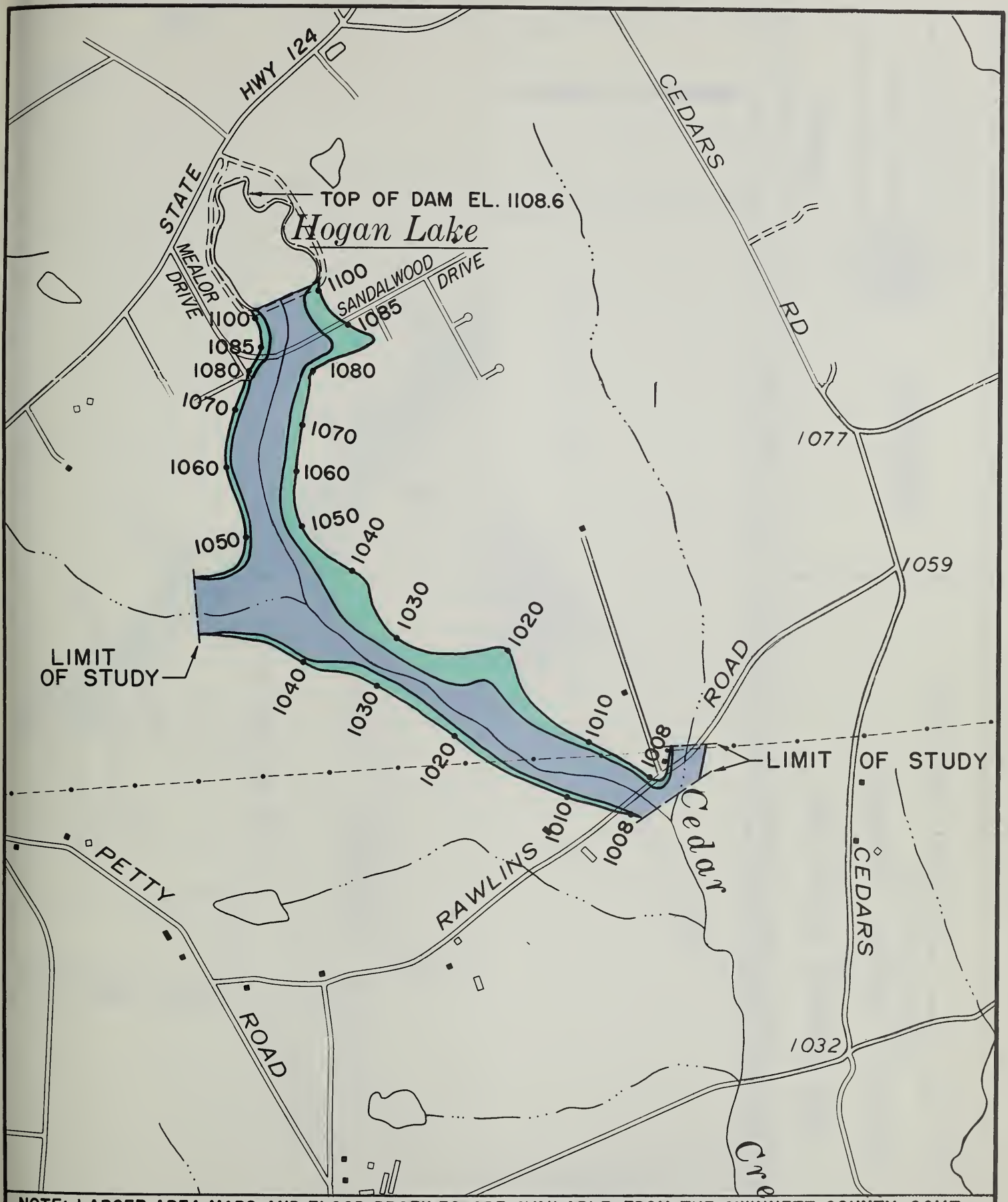
906
DAM BREACH FLOOD AREA
100 YEAR FLOOD AREA
DAM BREACH FLOOD AREA
906
FLOOD ELEVATION

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams
Interagency Task Force

NORTH

0 500 1,000
SCALE IN FEET

PLATE 90A



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVT.

LEGEND

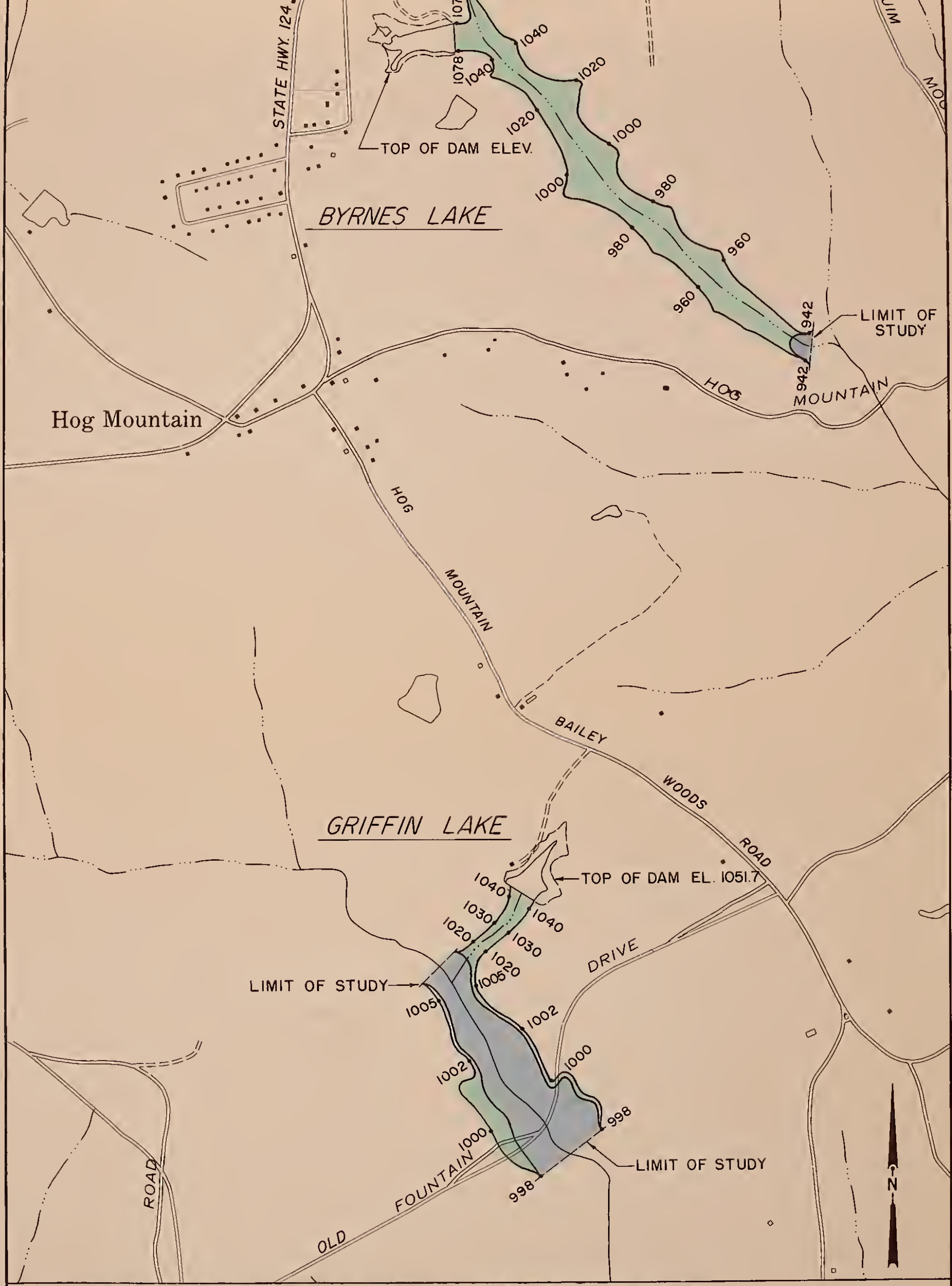
906 — DAM BREACH FLOOD AREA
— 100 YEAR FLOOD AREA
— DAM BREACH FLOOD AREA
906 — FLOOD ELEVATION

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams
Interagency Task Force

NORTH

0 500 1,000
SCALE IN FEET

PLATE 90B



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVERNMENT

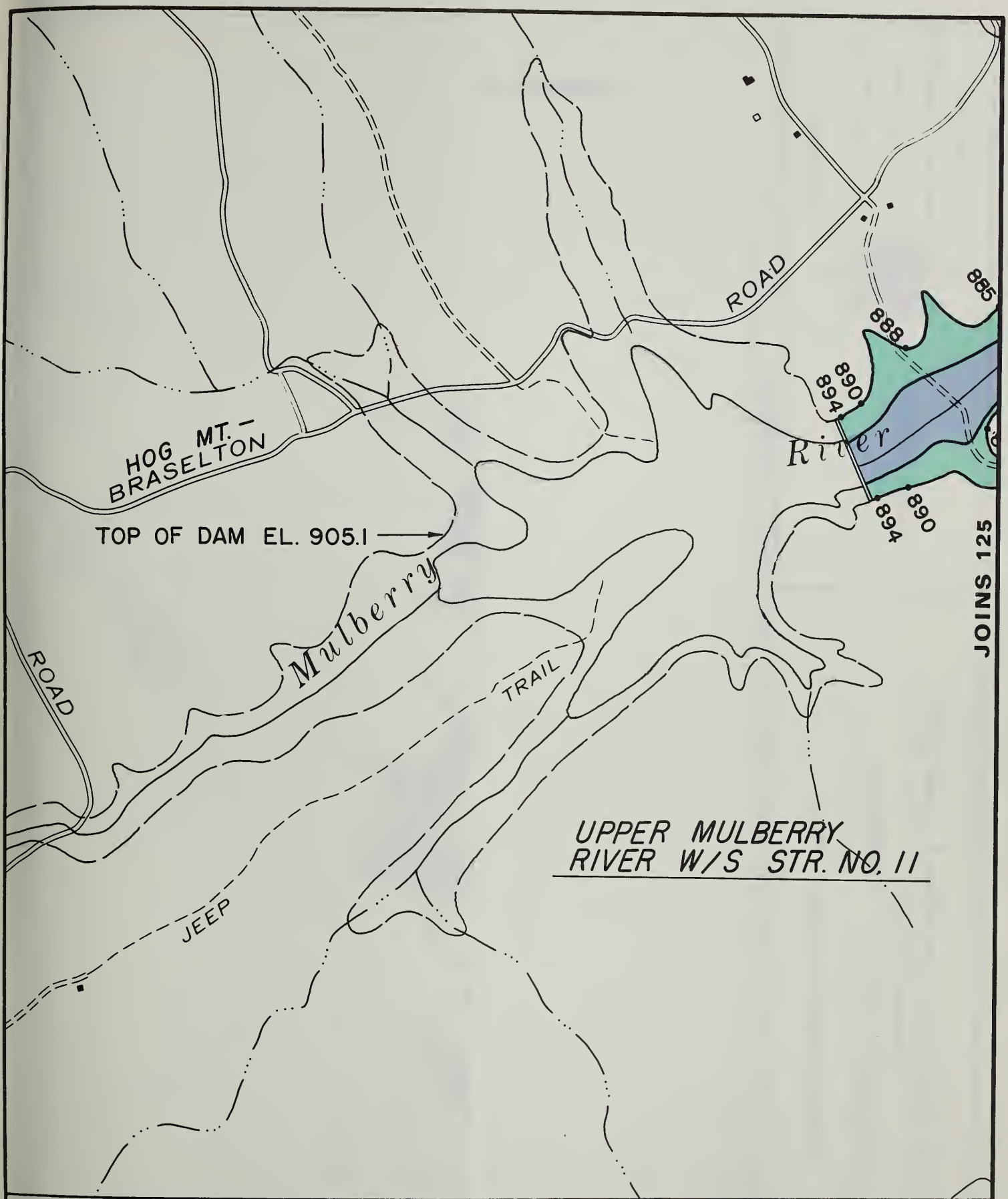
PLATE 95A

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams Interagency Task Force

LEGEND

0 500 1,000
SCALE IN FEET

906 — DAM BREACH FLOOD AREA
— 100 YEAR FLOOD AREA
— DAM BREACH FLOOD AREA
906 — FLOOD ELEVATION



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVT.

LEGEND

906 — DAM BREACH FLOOD AREA

— 100 YEAR FLOOD AREA

— DAM BREACH FLOOD AREA

906 — FLOOD ELEVATION

DAM BREACH FLOOD MAP

for

GWINNETT COUNTY, GEORGIA

prepared by the

Governor's Safe Dams

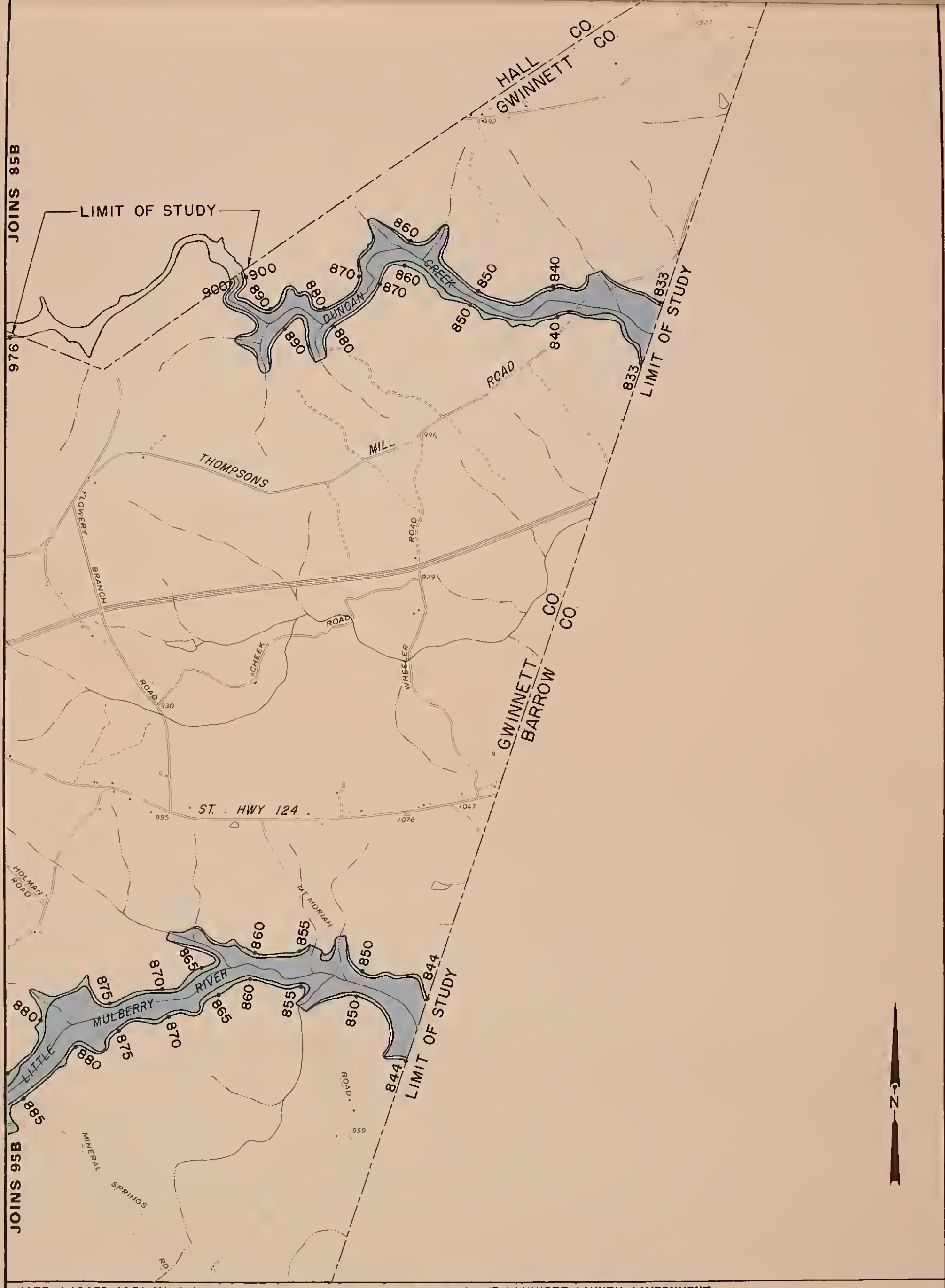
Interagency Task Force

NORTH

0 500 1,000

SCALE IN FEET

PLATE 95B



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVERNMENT

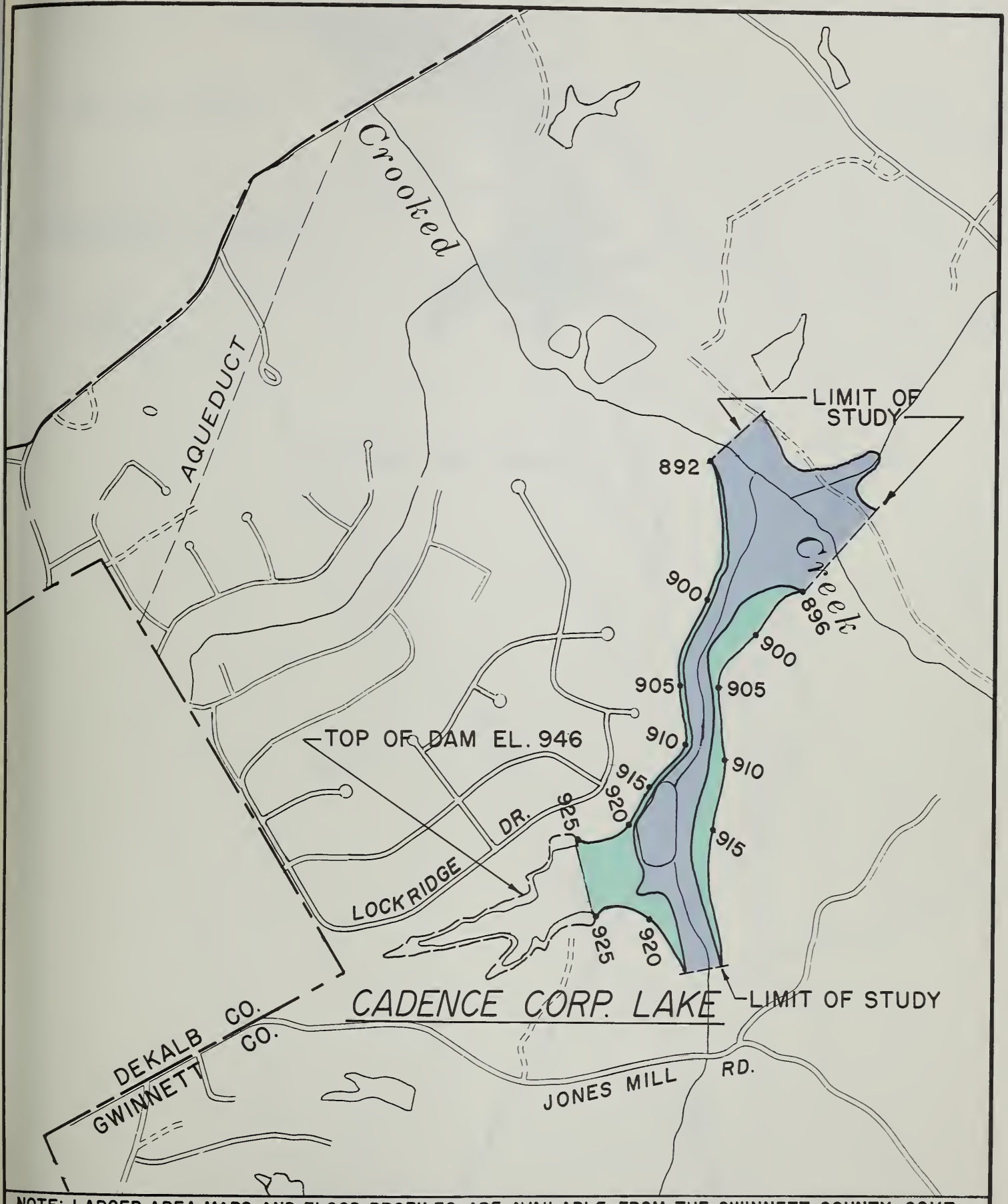
PLATE 125

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams Interagency Task Force

0 1,000 2,000
SCALE IN FEET

LEGEND

- DAM BREACH FLOOD AREA
- 100 YEAR FLOOD AREA
- DAM BREACH FLOOD AREA
- FLOOD ELEVATION



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVT.

LEGEND

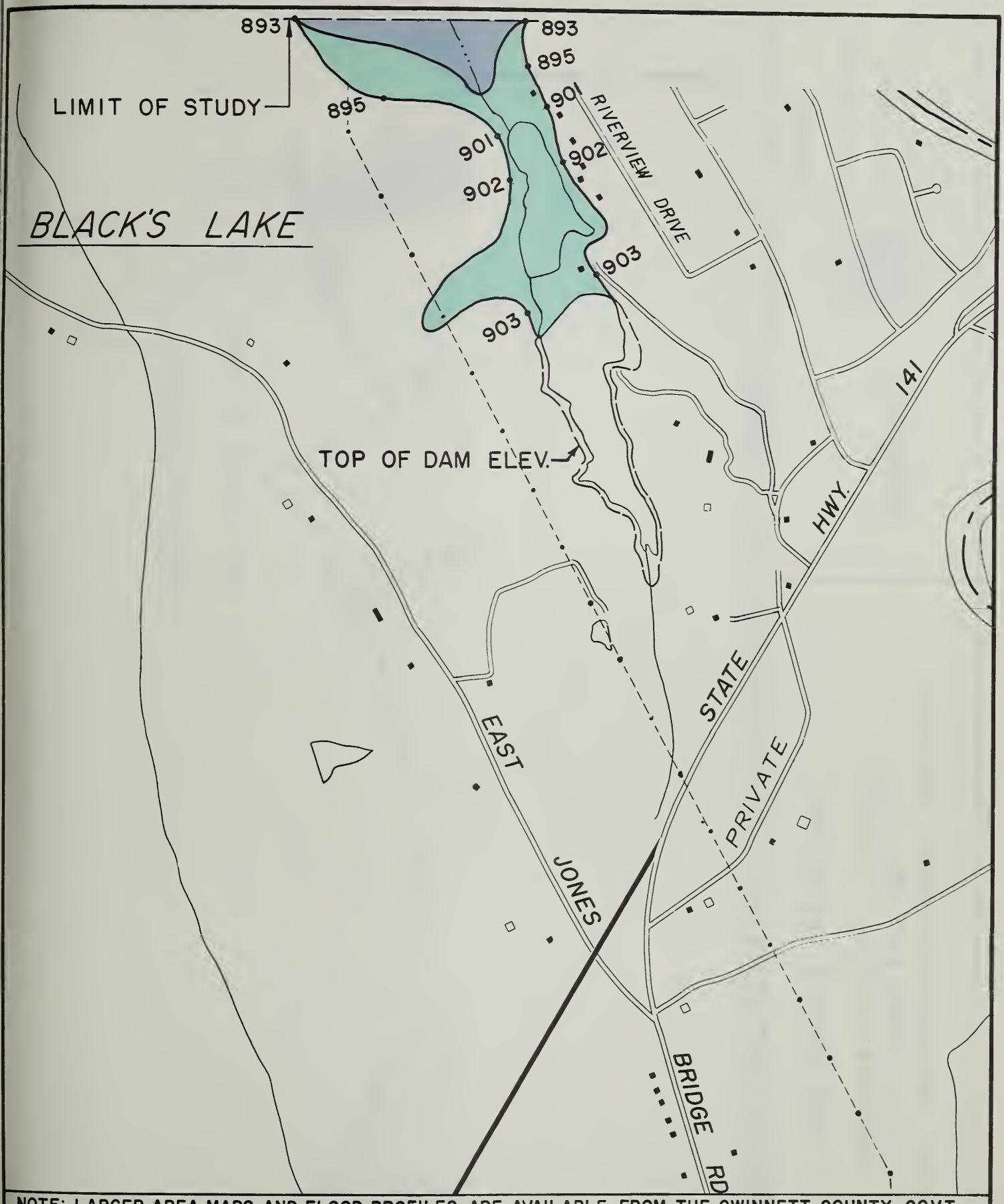
906 — DAM BREACH FLOOD AREA
— 100 YEAR FLOOD AREA
— DAM BREACH FLOOD AREA
906 — FLOOD ELEVATION

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams
Interagency Task Force

NORTH

0 500 1,000
SCALE IN FEET

PLATE 135



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVT.

LEGEND

906 — DAM BREACH FLOOD AREA

— 100 YEAR FLOOD AREA

— DAM BREACH FLOOD AREA

906 — FLOOD ELEVATION

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams
Interagency Task Force

NORTH

0 500 1,000
SCALE IN FEET

PLATE 155

LAKE NORMAN

TOP OF DAM EL. 991.8

DULUTH CITY LIMITS

Sweetwater Creek

HWY 120

TOP OF DAM EL. 959.0

BRISTOL LAKE

Whitehead Lake

DAVENPORT RD.

Kings Branch

Cr.

CARDINAL LAKE CIRCLE

TOP OF DAM EL. 975

988

CANARY LAKE

ALPHA KAPPA LAKE

TOP OF DAM EL. 947

CARDINAL LAKE

CARDINAL LAKE DRIVE

JOINS 180B

LIMIT OF STUDY

PIPELINE McDANIEL RD.

N

NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVERNMENT

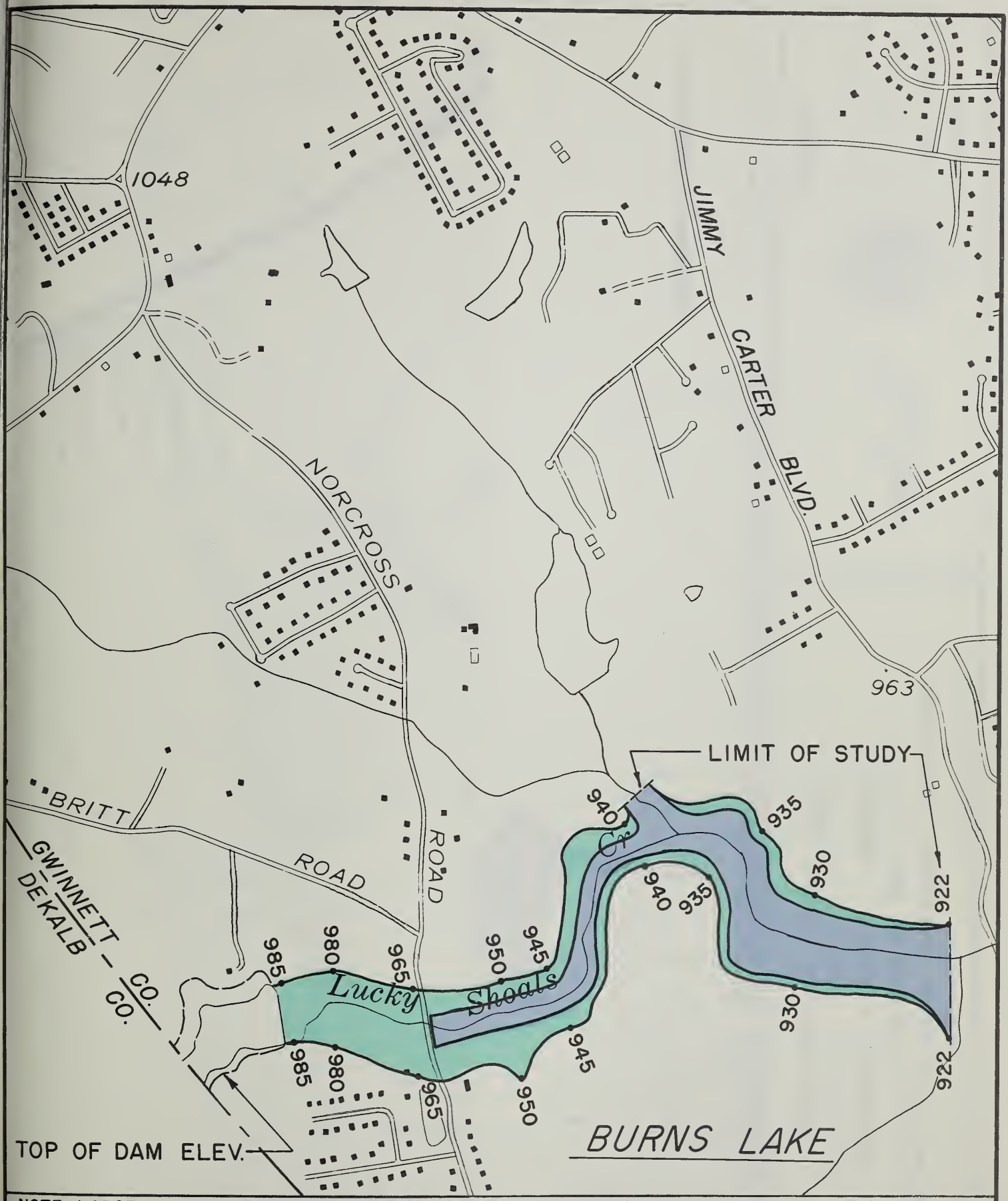
PLATE 160

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams Interagency Task Force

0 500 1,000
SCALE IN FEET

LEGEND

- DAM BREACH FLOOD AREA
- 100 YEAR FLOOD AREA
- DAM BREACH FLOOD AREA
- FLOOD ELEVATION



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVT.

LEGEND

906 — DAM BREACH FLOOD AREA
— 100 YEAR FLOOD AREA
— DAM BREACH FLOOD AREA
906 — FLOOD ELEVATION

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams
Interagency Task Force

NORTH

0 500 1,000
SCALE IN FEET

PLATE 165

NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVERNMENT

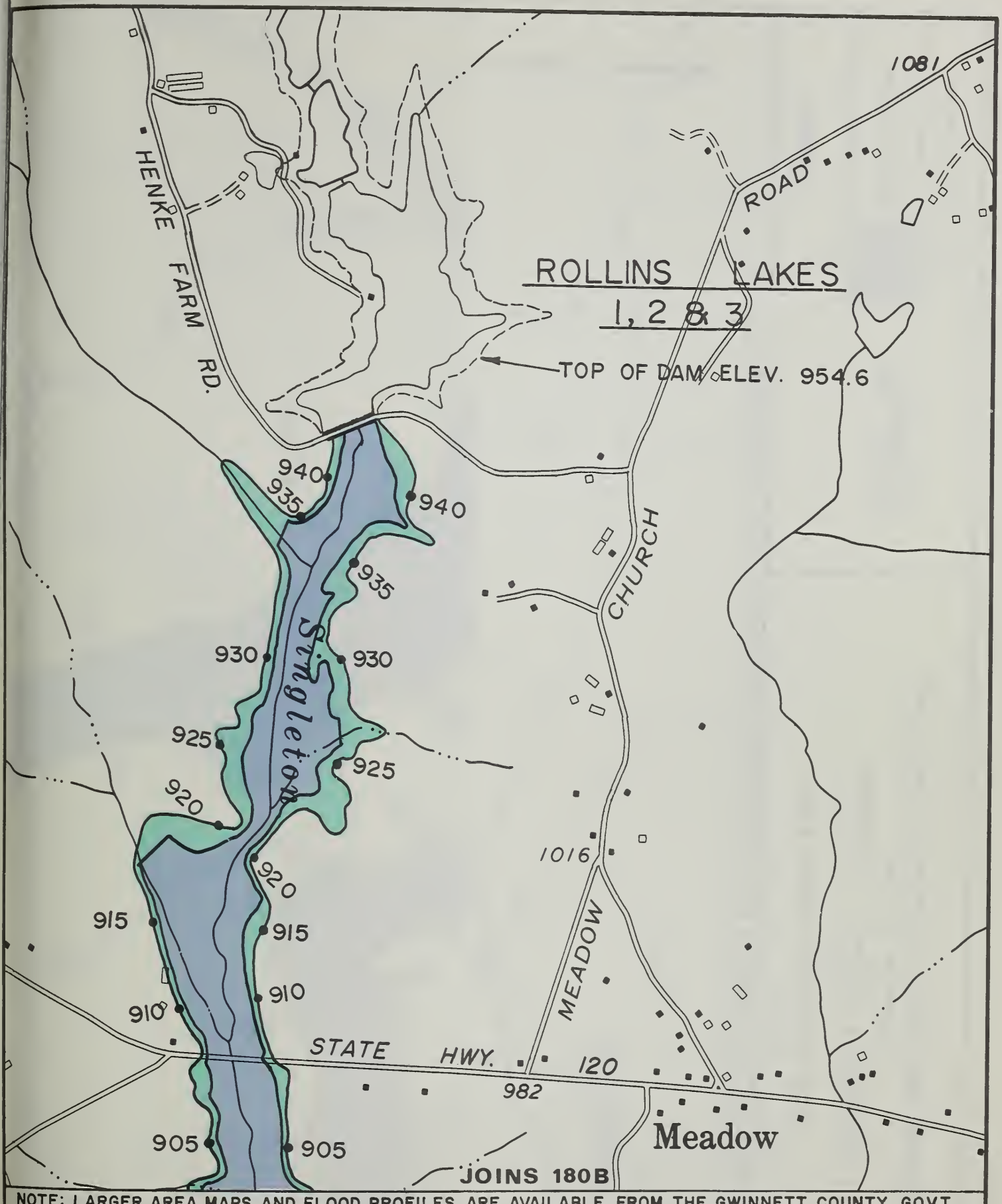
PLATE 170

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams Interagency Task Force

LEGEND

0 500 1,000
SCALE IN FEET

906 — DAM BREACH FLOOD AREA
100 YEAR FLOOD AREA
DAM BREACH FLOOD AREA
906 — FLOOD ELEVATION



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVT.

LEGEND

906 — DAM BREACH FLOOD AREA
— 100 YEAR FLOOD AREA
— DAM BREACH FLOOD AREA
906 — FLOOD ELEVATION

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams
Interagency Task Force

NORTH

0 500 1,000
SCALE IN FEET

PLATE 180A

JOINS 160

MC DANIEL RD.

RD

925

920

915

910

905

920

915

910

905

900

900

900

895

893

893

885

885

881

881 LIMIT OF STUDY

Creek

Sweetwater

Creek

PIPELINE

EXPRESSW

BOGGS

ELDREDGE

LIMIT OF STUDY

NORTHEAST

OLD

NORCROSS

ROAD

922

891

919

ROAD

LAWRENCEVILLE R

ROAD

SWEETWATER

876

Pleasant Hill

N

NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVERNMENT

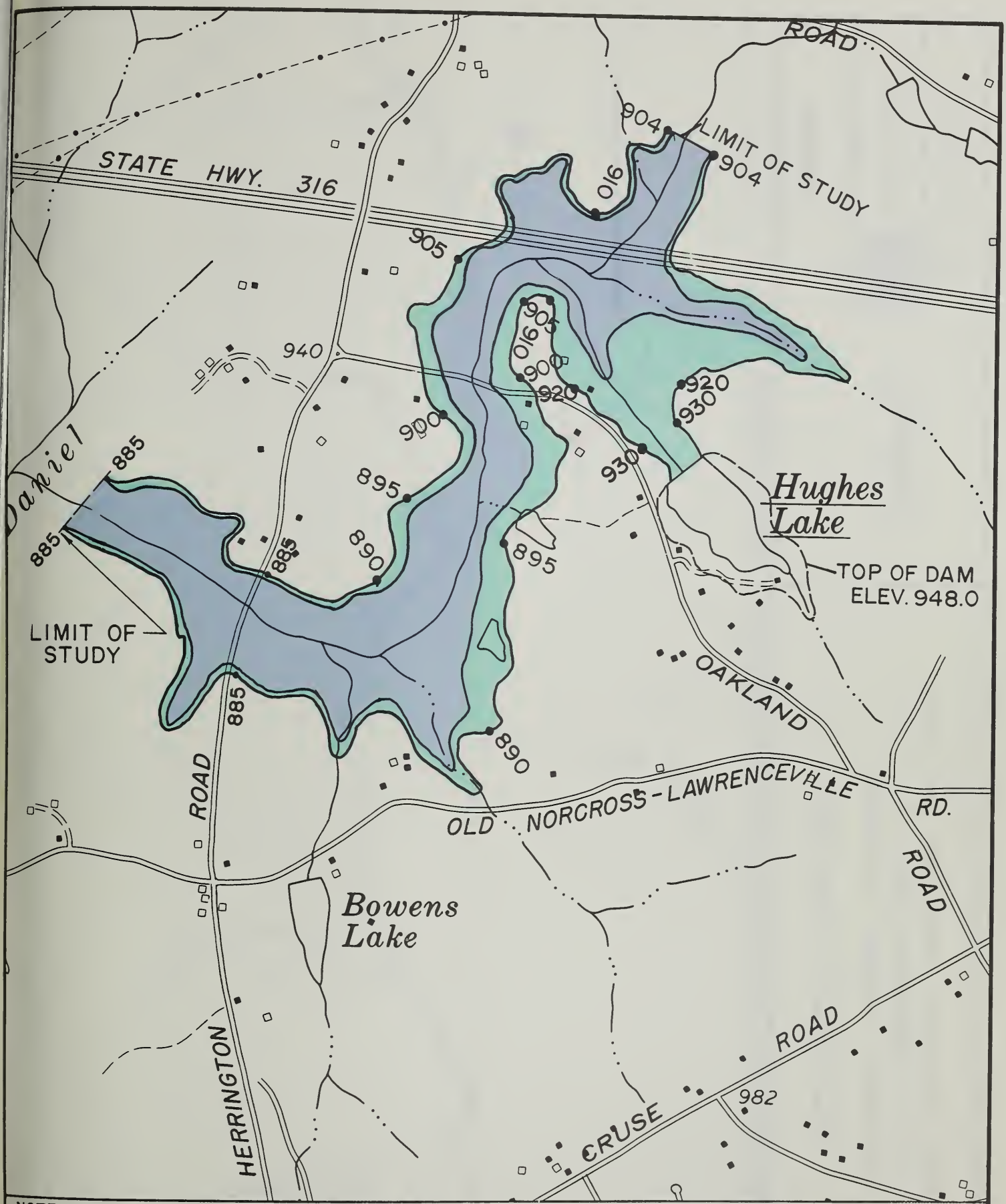
PLATE 180B

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams Interagency Task Force

0 500 1,000
SCALE IN FEET

LEGEND

906
DAM BREACH FLOOD AREA
100 YEAR FLOOD AREA
DAM BREACH FLOOD AREA
906
FLOOD ELEVATION



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVT.

LEGEND

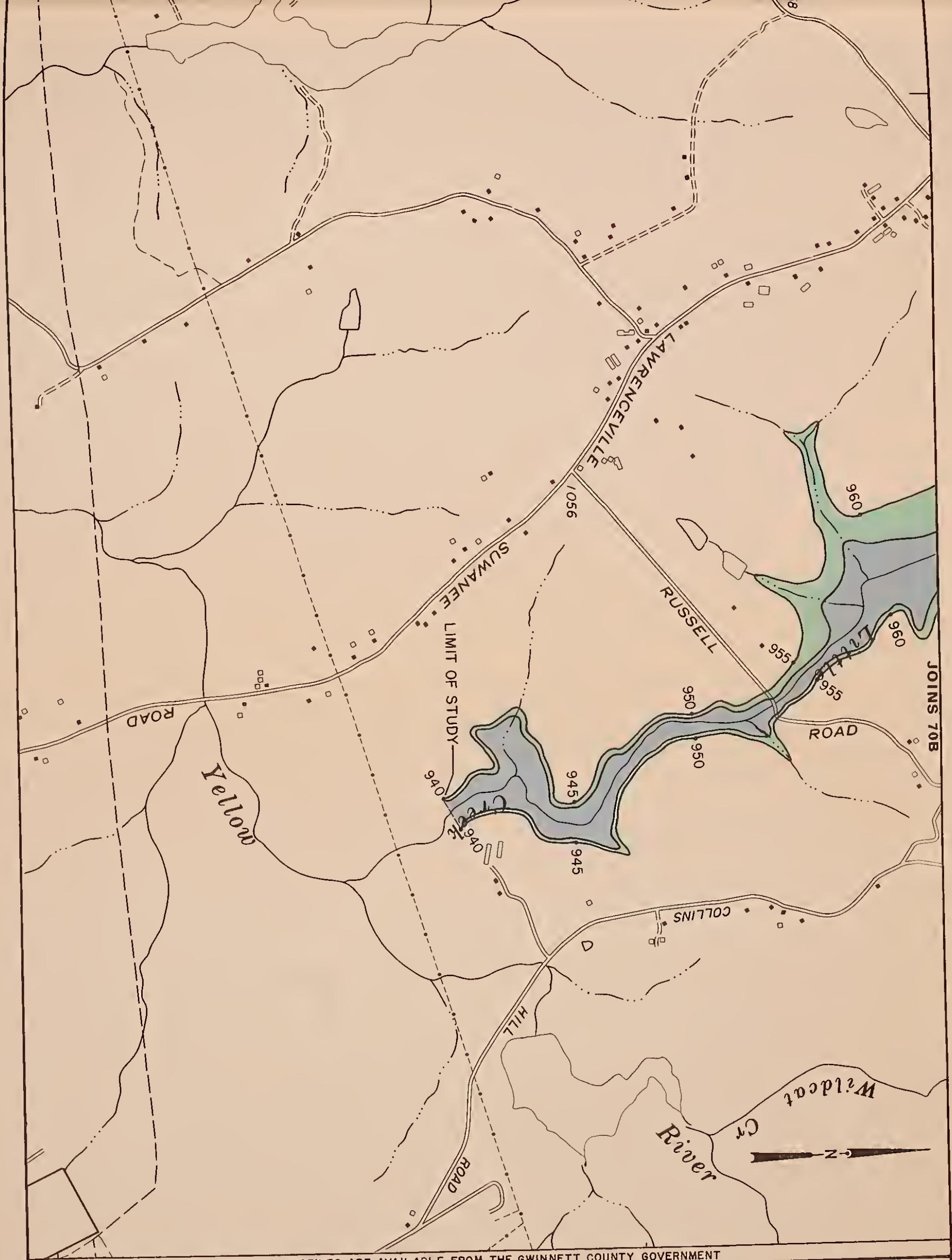
906
DAM BREACH FLOOD AREA
100 YEAR FLOOD AREA
DAM BREACH FLOOD AREA
906
FLOOD ELEVATION

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams
Interagency Task Force

NORTH

0 500 1,000
SCALE IN FEET

PLATE 180C



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVERNMENT

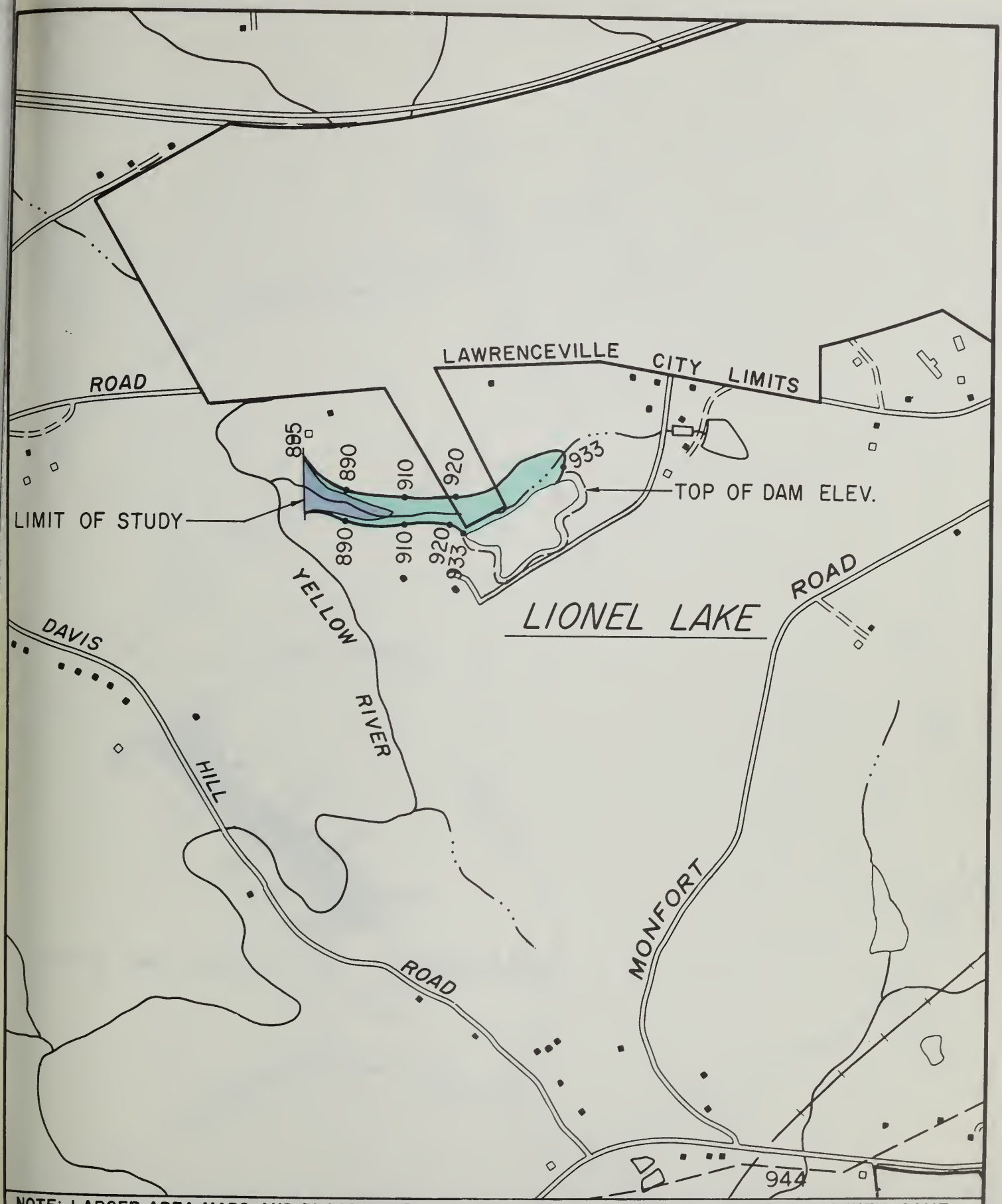
PLATE 185A

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams Interagency Task Force

0 500 1,000
SCALE IN FEET

LEGEND

- 906 — DAM BREACH FLOOD AREA
- 100 YEAR FLOOD AREA
- DAM BREACH FLOOD AREA
- 906 — FLOOD ELEVATION



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVT.

LEGEND

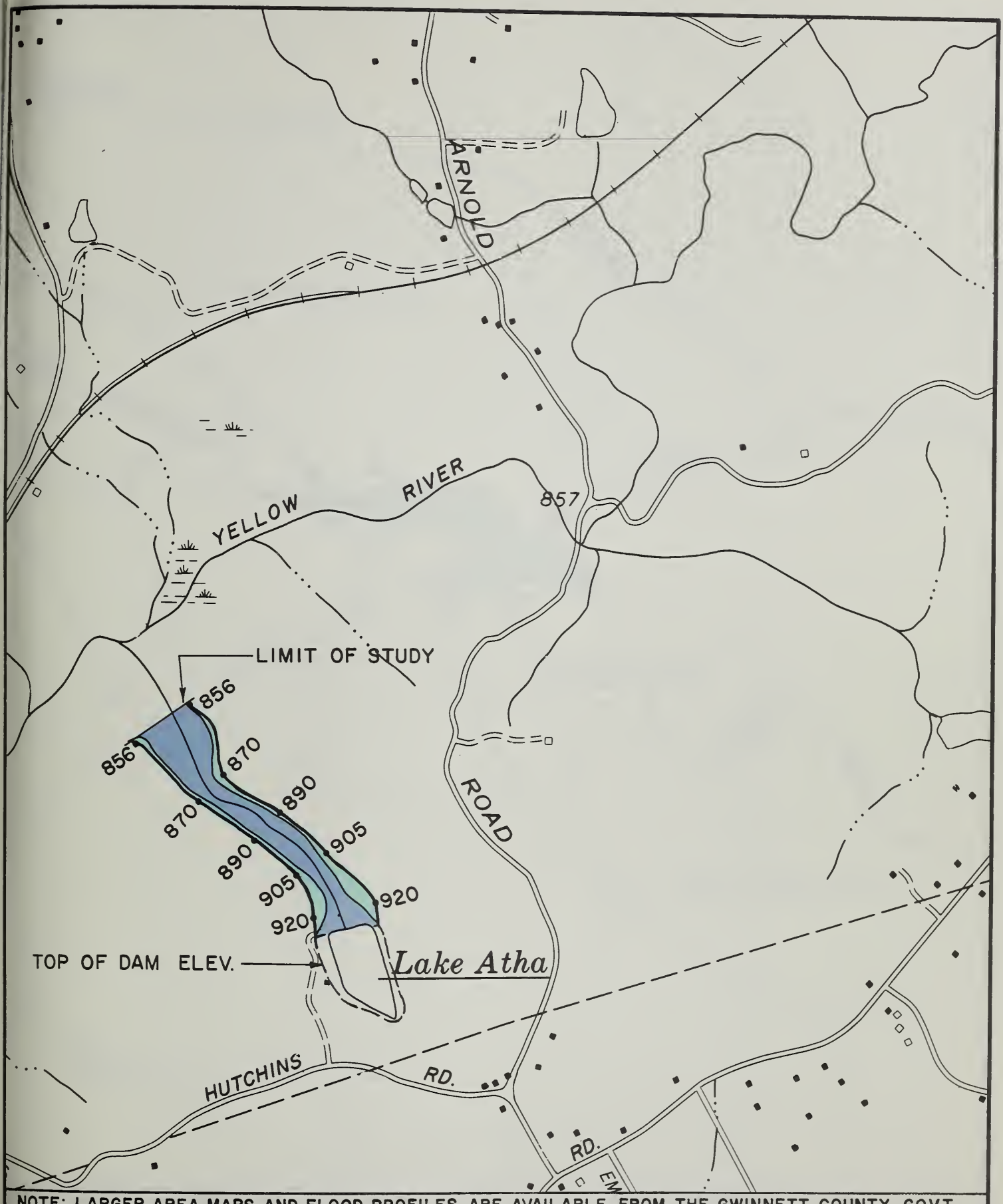
906 — DAM BREACH FLOOD AREA
— 100 YEAR FLOOD AREA
— DAM BREACH FLOOD AREA
906 — FLOOD ELEVATION

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams
Interagency Task Force

NORTH

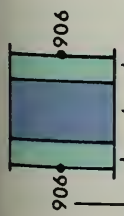
0 500 1,000
SCALE IN FEET

PLATE 185B



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVT.

LEGEND



DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams
Interagency Task Force

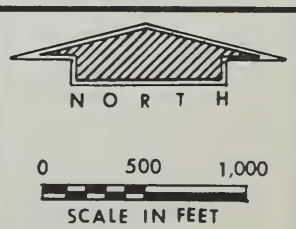
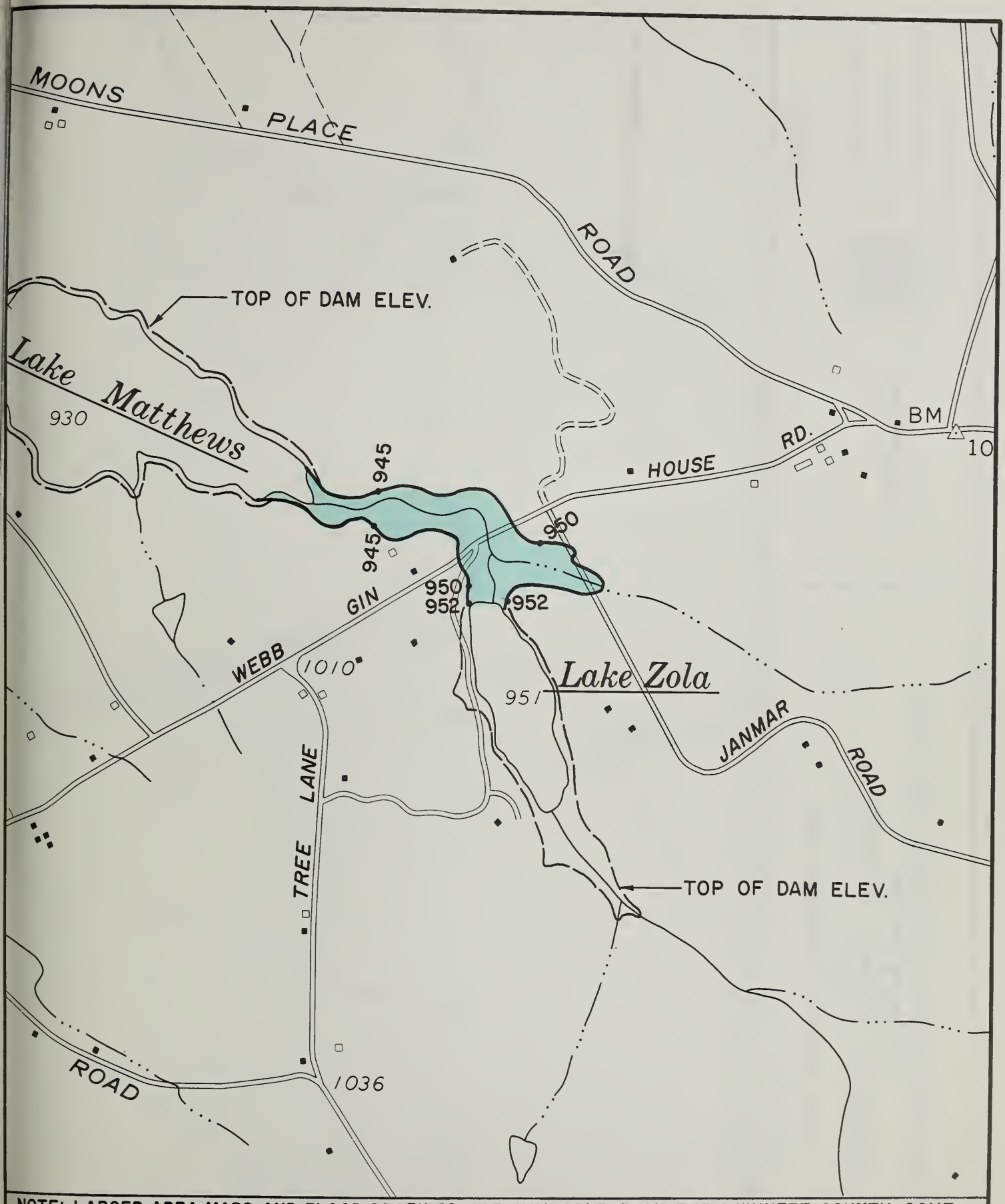


PLATE 195A



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVT.

LEGEND

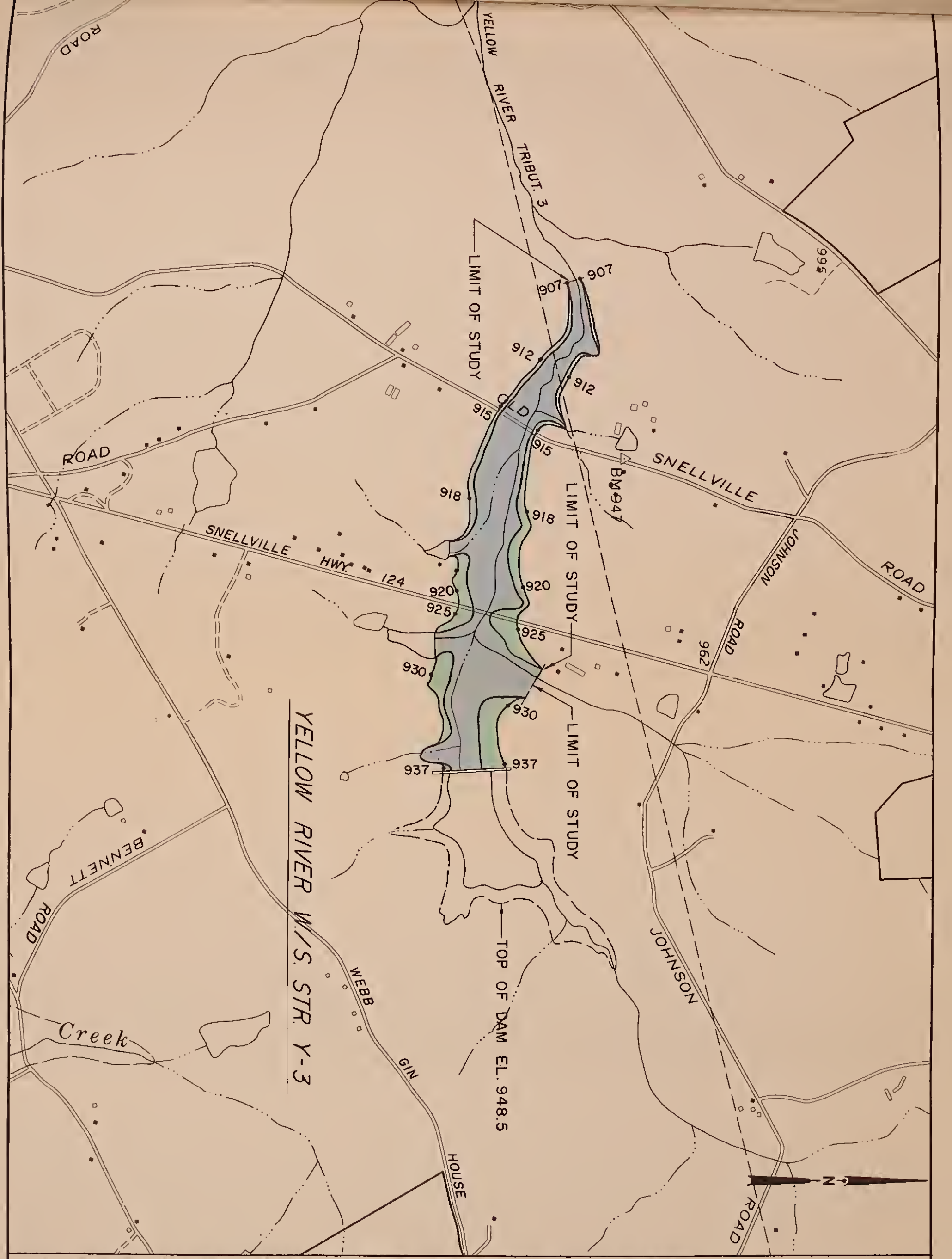
906
DAM BREACH FLOOD AREA
100 YEAR FLOOD AREA
DAM BREACH FLOOD AREA
906
FLOOD ELEVATION

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams
Interagency Task Force

NORTH

0 500 1,000
SCALE IN FEET

PLATE 195B



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVERNMENT

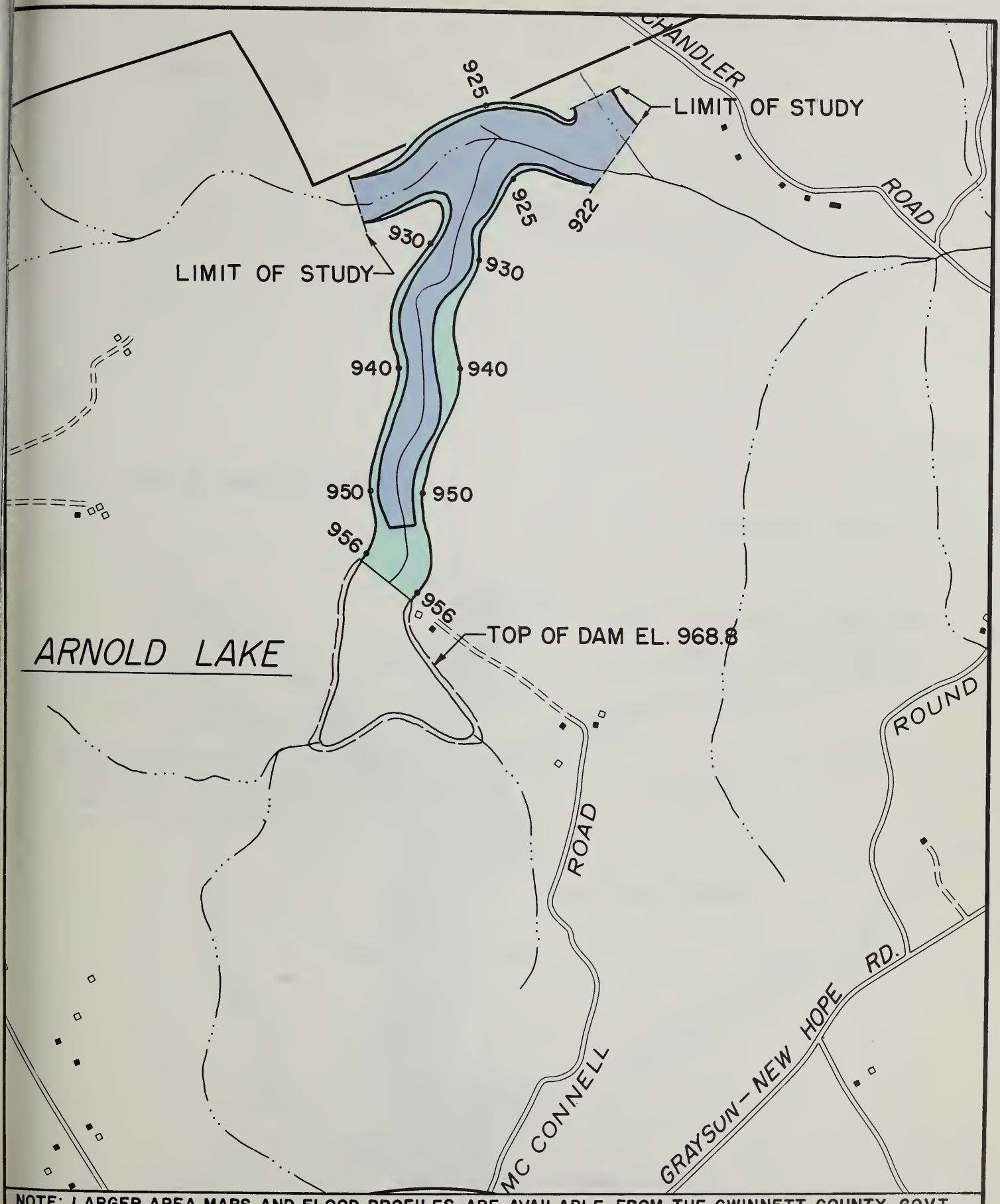
PLATE 215A

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams Interagency Task Force

0 500 1,000
SCALE IN FEET

LEGEND

- DAM BREACH FLOOD AREA
- 100 YEAR FLOOD AREA
- DAM BREACH FLOOD AREA
- 906 — FLOOD ELEVATION



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVT.

LEGEND

906 — DAM BREACH FLOOD AREA

— 100 YEAR FLOOD AREA

— DAM BREACH FLOOD AREA

906 — FLOOD ELEVATION

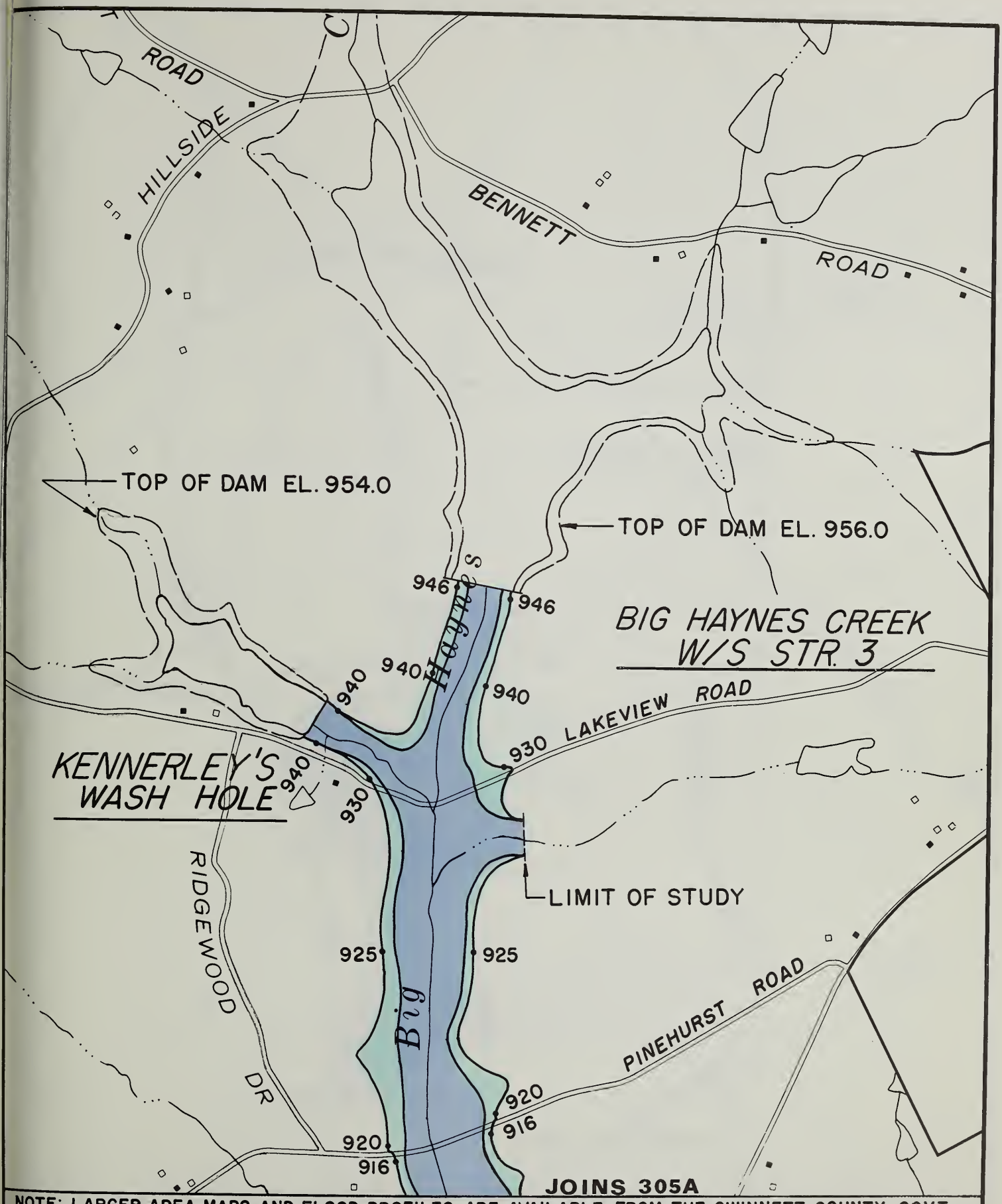
DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams
Interagency Task Force

NORTH

0 500 1,000

SCALE IN FEET

PLATE 215B



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVT.

LEGEND

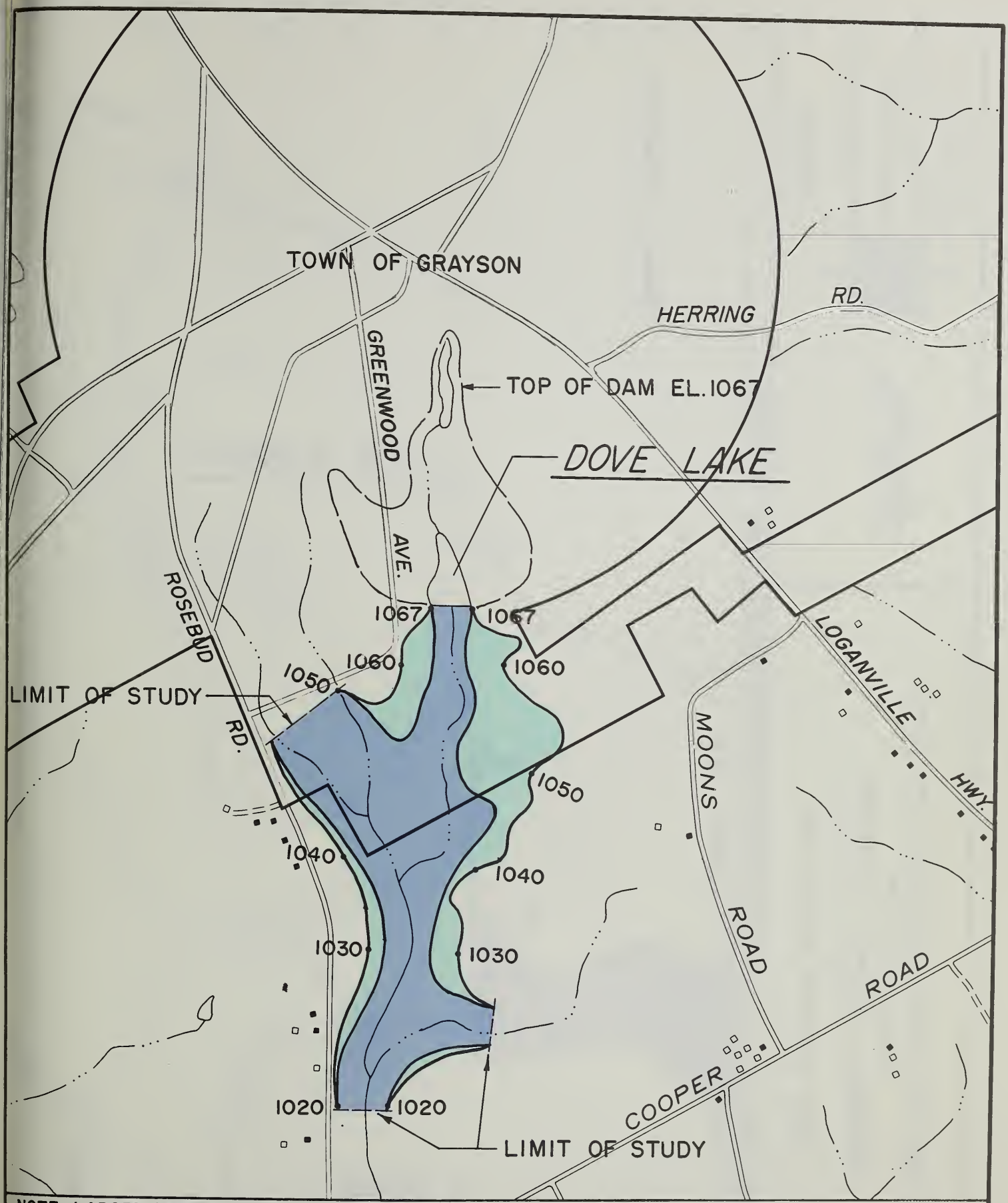
906
DAM BREACH FLOOD AREA
100 YEAR FLOOD AREA
DAM BREACH FLOOD AREA
906
FLOOD ELEVATION

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams
Interagency Task Force

NORTH

0 500 1,000
SCALE IN FEET

PLATE 215C



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVT.

LEGEND

906 — DAM BREACH FLOOD AREA
— 100 YEAR FLOOD AREA
— DAM BREACH FLOOD AREA
906 — FLOOD ELEVATION

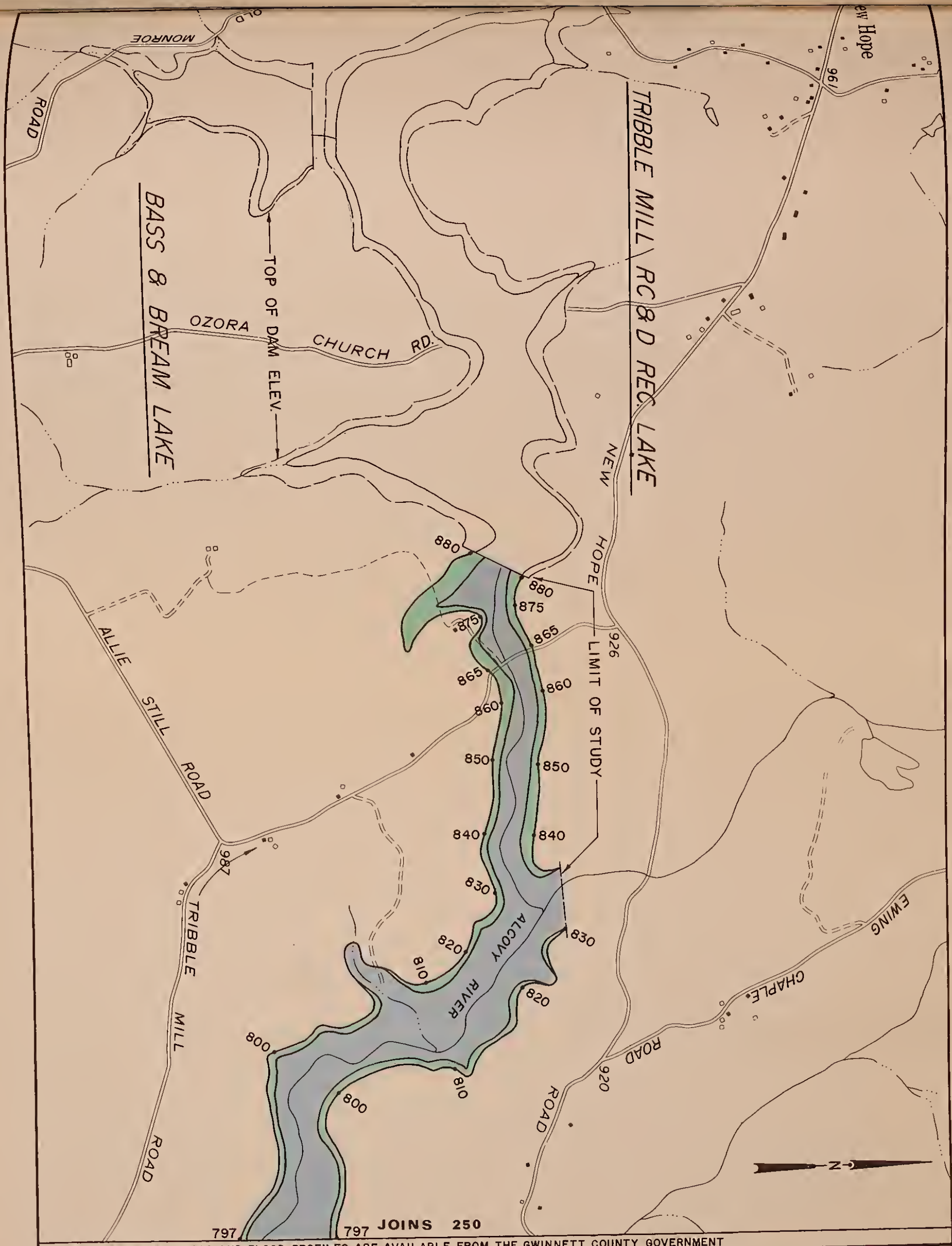
DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams
Interagency Task Force

NORTH

0 500 1,000
SCALE IN FEET

PLATE 215D

This fo



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVERNMENT

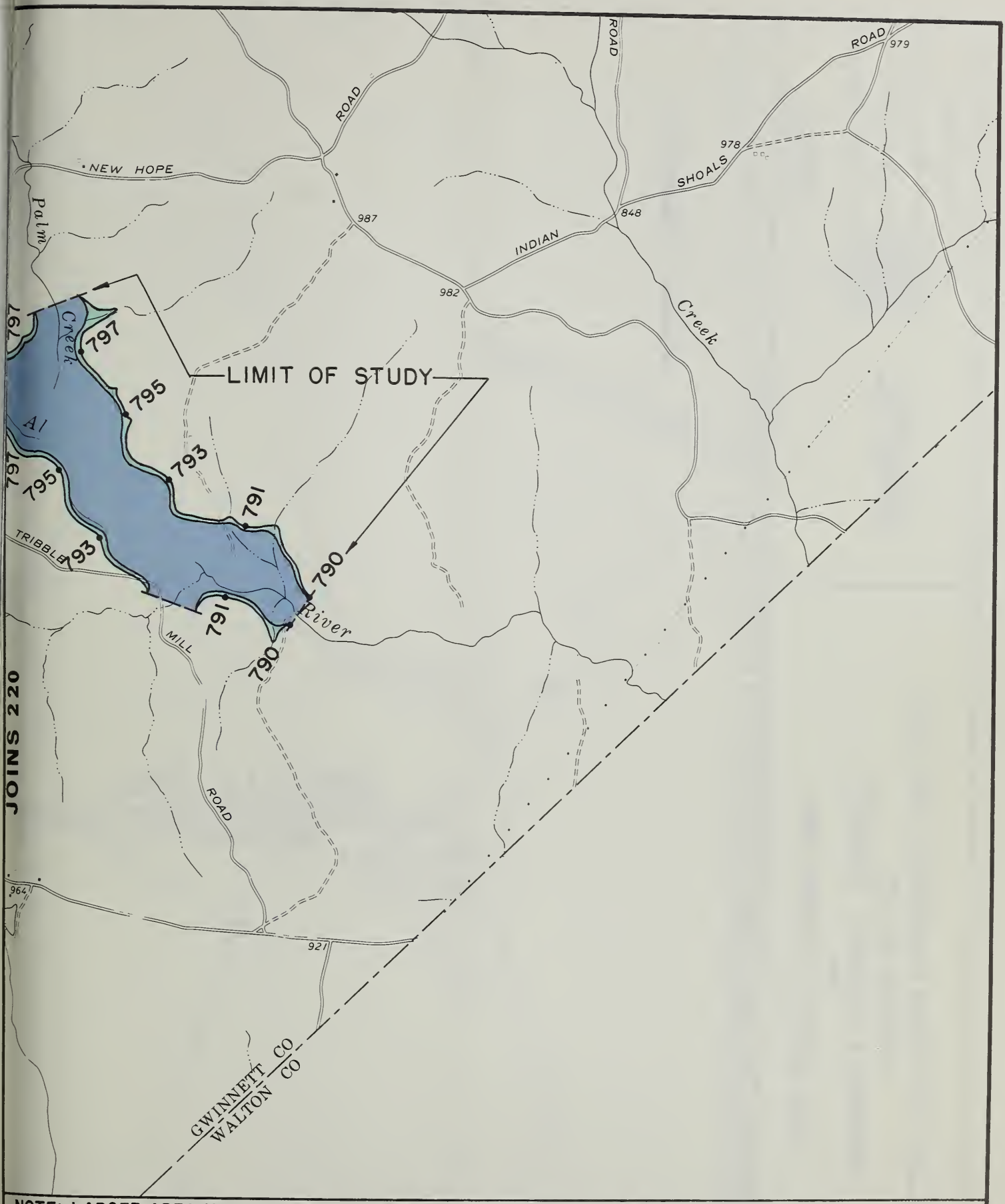
PLATE 220

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams Interagency Task Force

0 500 1,000
SCALE IN FEET

LEGEND

906 — DAM BREACH FLOOD AREA
— 100 YEAR FLOOD AREA
— DAM BREACH FLODD AREA
906 — FLOOD ELEVATION



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVT.

LEGEND

- 906 — DAM BREACH FLOOD AREA
- 100 YEAR FLOOD AREA
- DAM BREACH FLOOD AREA
- 906 — FLOOD ELEVATION

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams Interagency Task Force

NORTH

0 1,000 2,000
SCALE IN FEET

PLATE 250

LAKE LUCERNE ROAD

BENDING RIVER TRAIL

KILLIAN HILL ROAD

McDANIELS BRIDGE RD.

YELLOW

PANTER LAKE

PYLANT LAKE

Edwards Lakes

TOP OF DAM ELEVATIONS

LIMIT OF STUDY

Creek

LAKE LUCERNE

NOTE: ALL BREACH FLOOD AREA WITHIN 100 YR. FLOOD ZONE

TOP OF DAM EL. 817.0

LAKE LUCERNE DRIVE

Opossum Lake

U.S. 78

BM 869

STONE MOUNTAIN HWY.

PRIVATE

942 912 943 919 948

820 850 845 864 893 840 835 825 816 830 824 812

N

LEGEND

DAM BREACH FLOOD AREA

100 YEAR FLOOD AREA

DAM BREACH FLOOD AREA

FLOOD ELEVATION

906 906

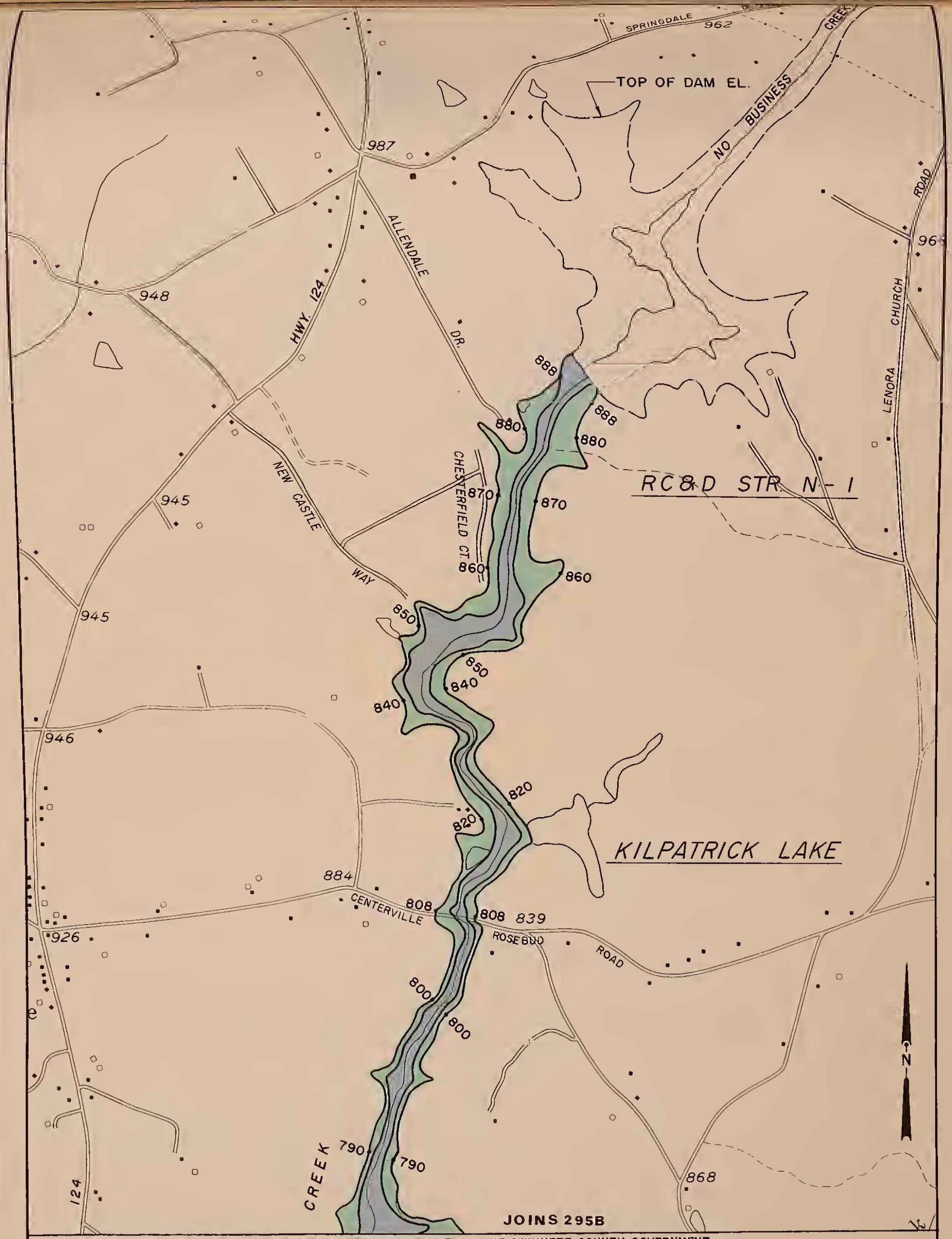
0 500 1,000

SCALE IN FEET

NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVERNMENT

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams Interagency Task Force

PLATE 280



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVERNMENT

PLATE 295A

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams Interagency Task Force

LEGEND

0 500 1,000
SCALE IN FEET

906
DAM BREACH FLOOD AREA
100 YEAR FLOOD AREA
DAM BREACH FLOOD AREA
906
FLOOD ELEVATION

JOINS 295A

BUSINESS

NO

780

780

770

LIMIT OF STUDY

765

765

770

760

760

Do Little

MINK

LIVSEY ROAD

952

873

755

ROCK BRIDGE ROAD

755

879

LEE RD.

750

750

745

745

742

742

LIMIT OF STUDY

LAKE ROAD

LAKE DR.

Norris Lake

732

835

GWINNETT CO.

DEKALB CO.

N

NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVERNMENT

PLATE 295B

DAM BREACH FLOOD MAP

for

GWINNETT COUNTY, GEORGIA

prepared by the

Governor's Safe Dams Interagency Task Force

0 500 1,000

SCALE IN FEET

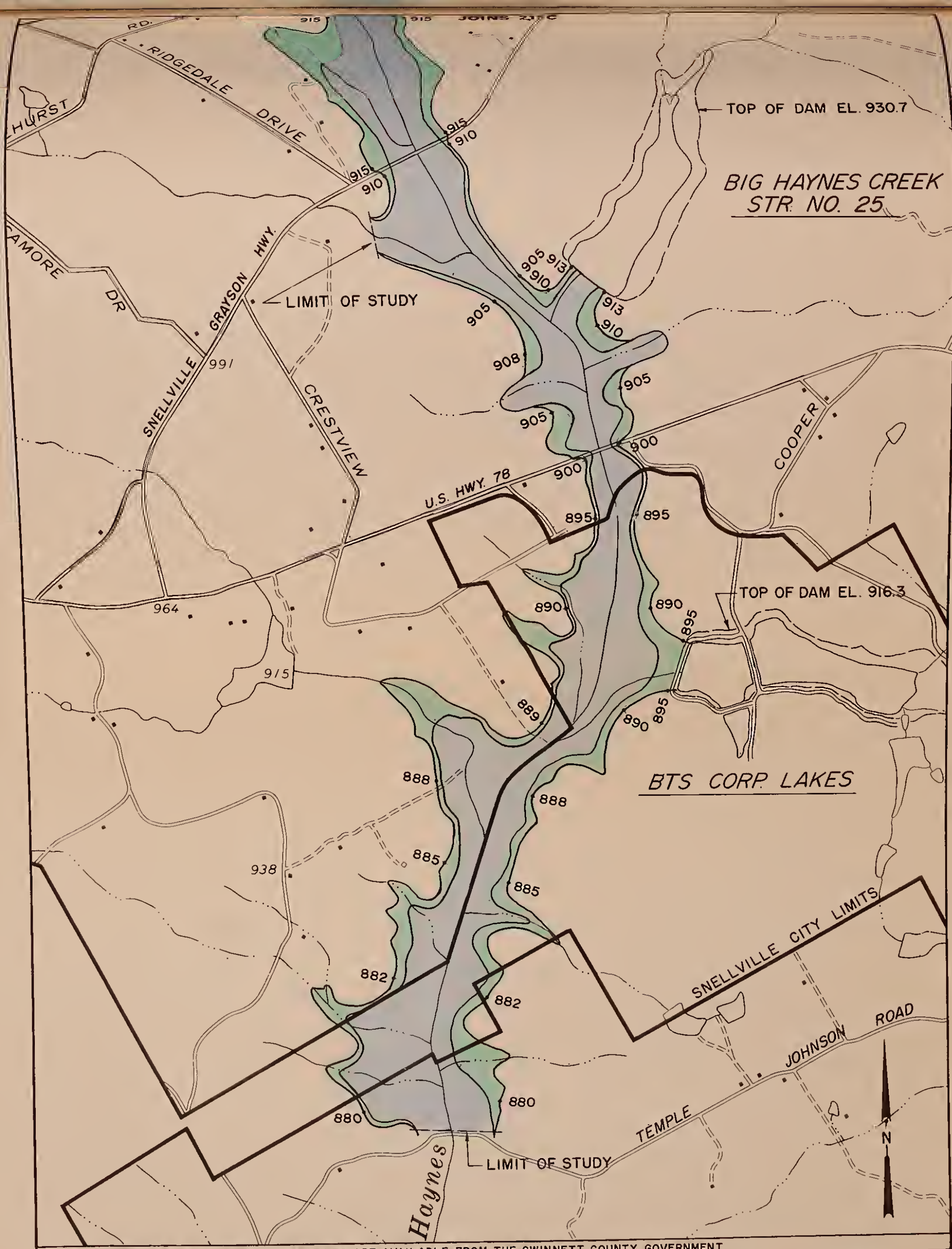
LEGEND

906 — DAM BREACH FLOOD AREA

100 YEAR FLOOD AREA

DAM BREACH FLOOD AREA

906 — FLOOD ELEVATION



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVERNMENT

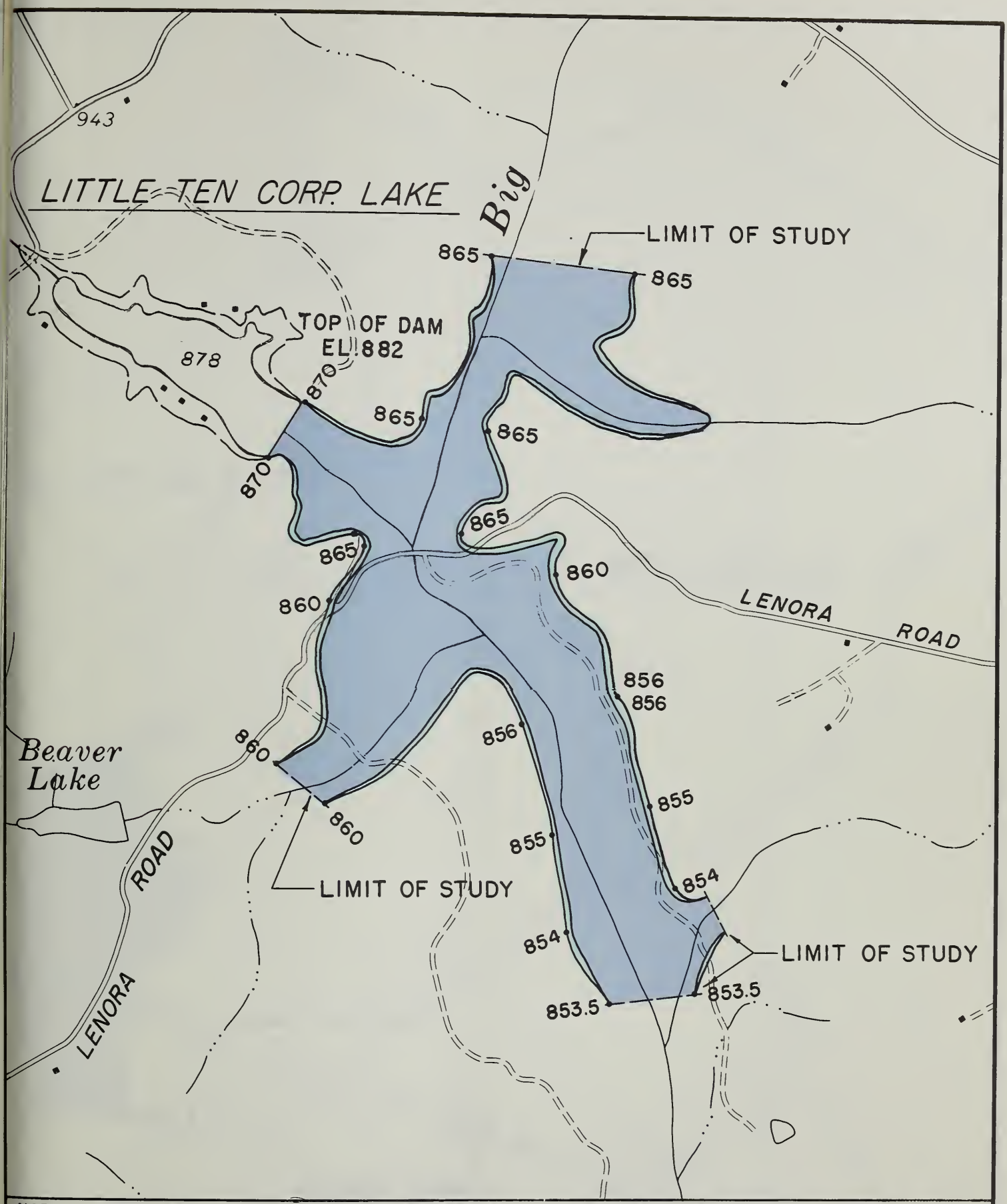
PLATE 305A

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams Interagency Task Force

LEGEND

0 500 1,000
SCALE IN FEET

906
DAM BREACH FLOOD AREA
100 YEAR FLOOD AREA
DAM BREACH FLOOD AREA
906
FLOOD ELEVATION



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVT.

LEGEND

906 — DAM BREACH FLOOD AREA

100 YEAR FLOOD AREA

DAM BREACH FLOOD AREA

906 — FLOOD ELEVATION

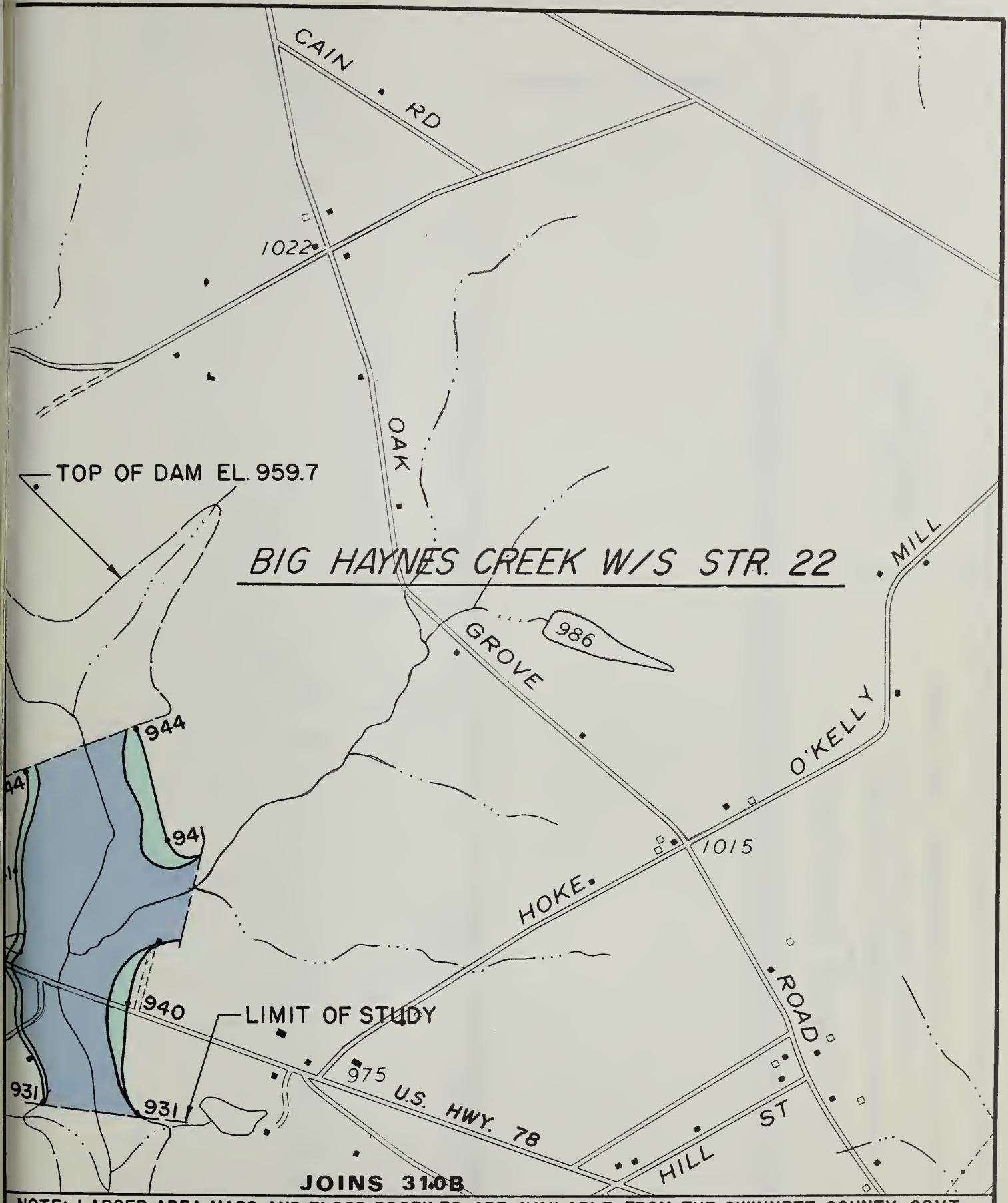
DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams
Interagency Task Force

NORTH

0 500 1,000

SCALE IN FEET

PLATE 305B



NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVT.

LEGEND

906 — DAM BREACH FLOOD AREA
— 100 YEAR FLOOD AREA
— DAM BREACH FLOOD AREA
906 — FLOOD ELEVATION

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams
Interagency Task Force

NORTH

0 500 1,000
SCALE IN FEET

PLATE 310A

JOINS 310A

BRUSHY FORK

TOP OF DAM EL.935

LAKE CARLTON DR.

TOP OF DAM EL. 935.0

ROAD

LAKE CARLTON

LAKE CARLTON

920

920

915

915

913

SMITH DR

ROAD

LIMIT OF STUDY

LIMIT OF STUDY

HARRISON

1013

910

908

907

911

910

908

LOGANVILLE ROAD

905

905

904

903

903

954

GWINNETT CO.
WALTON CO.

900

900

BEAVER

942

947

ROAD

896

896

946

LIMIT OF STUDY

N

NOTE: LARGER AREA MAPS AND FLOOD PROFILES ARE AVAILABLE FROM THE GWINNETT COUNTY GOVERNMENT

PLATE 310B

DAM BREACH FLOOD MAP
for
GWINNETT COUNTY, GEORGIA
prepared by the
Governor's Safe Dams Interagency Task Force

0 500 1,000
SCALE IN FEET

LEGEND

906
DAM BREACH FLOOD AREA
100 YEAR FLOOD AREA
DAM BREACH FLOOD AREA
906
FLOOD ELEVATION